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ENGINE STORAGE

THE

South African MINING JOURNAL

WITH WHICH IS INCORPORATED

"The South African Mines, Commerce & Industries."

ESTABLISHED 1891

PUBLISHED EVERY SATURDAY

VOL. XXV. PART II. No. 1298.]

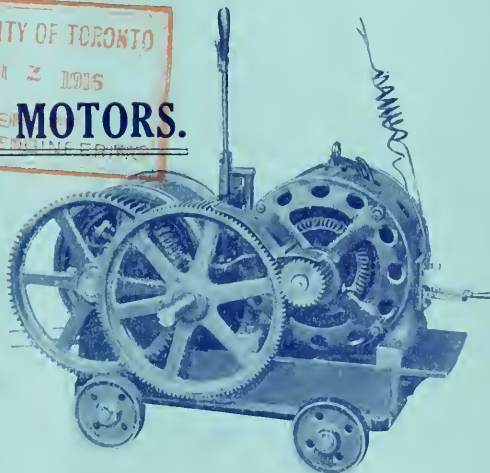
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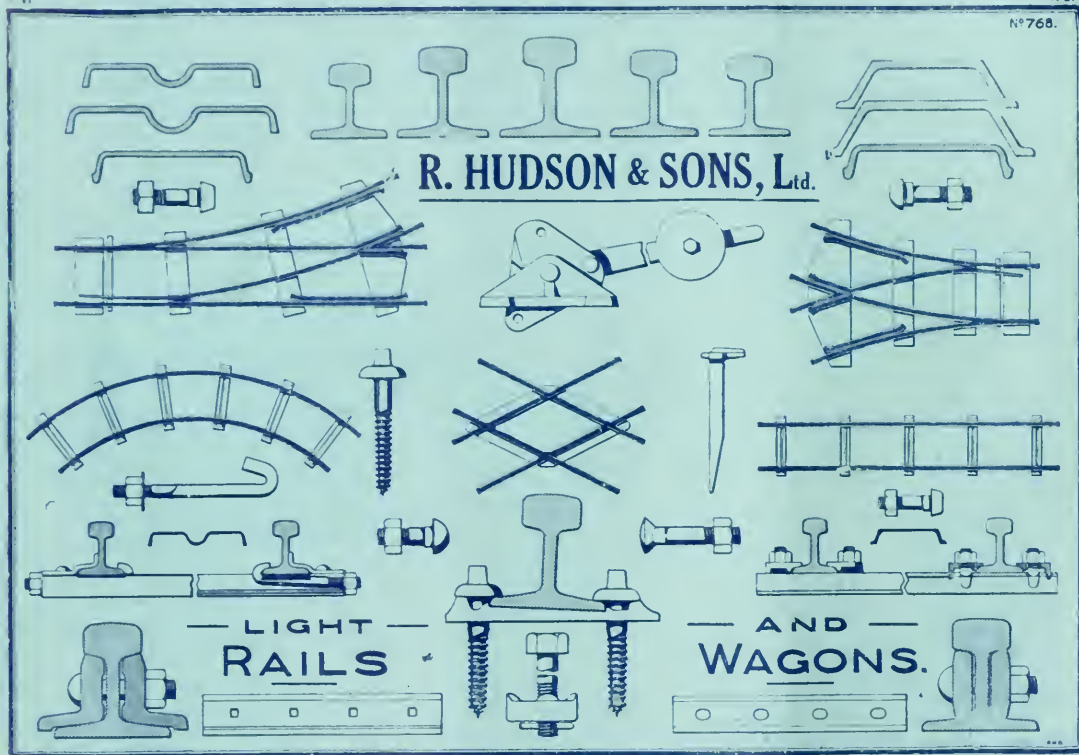
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Mining Journal,

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ESTABLISHED 1891.

Vol. XXV., PART II.] AUG. 12, 1916. [No. 1298.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.Telephone **913**. P.O. Boxes **963** and **418**.Cable and Telegraphic Address: "**MINING JOURNAL**."**AGENTS FOR GREAT BRITAIN:** Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.**AMERICA:** Gotham Advertising Co., 95, Liberty Street, New York.**ANNUAL SUBSCRIPTION RATES:** Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.	PAGE.
Notes and News	135
Topics of the Week:	
Mines and Men	437
An Industrial Awakening	438
A New Far East State Mine (illustrated)	439
The Future of the New Kleinfontein (illustrated)	440
The Nigel Reef on Platkoppe (illustrated)	442
Hints for Small Workers	443
The Manufacture of White Arsenic as a By-Product in Gold Extraction	445
The Position of the Messina Copper Mine	445
The Rhodesian Asbestos Situation	446
Prospects of Rhodesian Copper and Sulphur	446
The Prevention of Diseases among Miners	447
The July Output in Detail	449
July Output: Group Returns	450
The Week in the Mining Material and Engineering Trades	451
The Week in the Sharemarket	453
Company Meetings: East Rand Central Mine, Middleley Estate	454

Notes and News.

The Union Government is calling for tenders this week for the leasing of two large mining areas on

Two New State Mines: the Far East Rand. The first of **Modder and Brakpan.** these areas comprises 1,812 claims on

the farm Brakpan, south of the present

Brakpan Mines. Tenders have to be in by October 21st, 1916.

For the guidance of prospective tenderers it is notified that a sum of £800,000, approximately, will be required for shaft sinking and development; and a further sum of £700,000 for bringing the property to a producing stage, always provided that the area is worked as a separate mining unit. Applicants must state what percentage of the profits they are prepared to offer the Government; and such offer should preferably be based upon a sliding scale, and be exclusive of the usual taxation payable to the Government. The second area offered for public tender comprises 651 claims on the farm Modderfontein, adjoining the New Modder, and bounded by that mine and the Rand Klip and Cloverfield properties. For the guidance of prospective tenderers it is estimated that a sum of £300,000 will be required for preliminary shaft sinking and development, and a further sum of £300,000 to bring the property to the producing stage. Otherwise similar terms are laid down as in the case of the Brakpan lease, and applicants are expected to frame their offers on the basis of the usual sliding scale. The property will be remembered as that known as the Modder Restante. To which of its neighbours it will fall is still conjectural. The Brakpan deep ground, however, can hardly go to other than the Brakpan Company.

The latest Geduld report shows that for the three months ended 30th June, 1916, the footage sampled totalled, 1,660 feet, assaying 5·7 dwts. over 47·7 inches. Dividend No. 4 of 5 per cent. (1s. per share) on the issued capital of the company, amounting to £48,500, was declared on the 14th June, payable to shareholders registered in the books of the company on the 30th June, 1916. Warrants in payment of this dividend were distributed to shareholders, except those resident in the territories of enemies, during the first week of August. The working costs during the quarter were reduced by 4·5d. per ton, but the grade of the ore milled shows a decrease of 1s. 3·1d. per ton, and as the amount of ore crushed was only 1,060 tons in excess of that milled during the preceding three months, the working profit was less by £2,874. Good progress has been made with the erection of the additional buildings and machinery for the extension of the reduction plant.

At the Modder Deep for the three months ended 30th June, 1916, the footage sampled totalled 1,900 feet, assaying 11·8 dwts. over 52·5 inches. Dividend No. 3 of 30 per cent. (6s. per share) on the issued capital of the company, amounting to £150,000, was declared on the 14th June, payable to shareholders registered in the books of the company on the 30th June, 1916. Warrants in payment of this dividend were distributed to shareholders, except those resident in the territories of enemies, during the first week of this month. The additional reduction plant was brought into operation on the 6th ult.; it is running satisfactorily. The working costs during the quarter were reduced by 2d. per ton, the grade of ore milled was better by 1·7d. per ton, and as the amount of ore crushed was greater by 2,700 tons, the working profit was £4,782 more than that for the previous quarter.

The fact that new applications for tenders for the Brakpan Government in Mining Area are to be called for puts the prospects of the Brakpan Mines in a still more favourable light than hitherto.

Brakpan Possibilities.

We have already denounced the somewhat conservative attitude of *The Statist* with regard to the possibilities of this and striking, and in support of our more sanguine views, have referred to the deep level ground which, in the event, seemed likely to fall into the possession of the company in the usual way. The procedure of the Government in respect of the Brakpan ground seems to be part of a succession of events which will tend to this result, for it is unlikely in view of the emphatic statements of other possible tenderers, that there will be any serious competition with the Consolidated Mines Selection Group in any offer they may make in accordance with the Government royalty conditions. It is unlikely, in the first place, that tenders would be asked for if the usual fiasco, or cold-shoulder policy were anticipated, and the future of this particular area, therefore, seems to have been already decided favourably by the fates that deal with these things.

* * * *

The improvement in the prospects of the Sub-Nigel, consequent on the richer development disclosures has prompted some grateful correspondents to thank us for calling their attention to the property as.

The Sub-Nigel's Improved Prospects.

far back as March last. In that month, and when the shares were valued at less than half their present quotation, we wrote: "No review of interests on the Far East Rand today can overlook the attractive possibilities of the Sub-Nigel—a producing, dividend-paying property equipped with a modern reduction plant, and possessed of a claim area so extensive as to put the life question outside consideration. Its neighbour on the outcrop, the Nigel, after a useful career of many years, has only lately ceased paying dividends, and from all accounts has by no means yet come to the end of its tether. As Dr. Mellor so clearly shows in his drawing reproduced in another part of this issue, all the rich ore-shoots of the Nigel continue into the Sub-Nigel, and the experience of the former property will prove an invaluable guide in opening up the large unexplored areas of the Sub-Nigel. . . . There has been a steady increase in profits since the remodelled plant got to work in June last. The tonnage, it will be seen, is being worked up to 8,000 tons per month; and the profits give promise of ranging up to the average for the last six months. The dividend for June should therefore be at least 5 per cent., or a shilling per share, and the mine thereafter promises to pay a steady 10 per cent. per annum, or about 20 per cent. on the present share price. Speaking at the Gold Trust meeting the other day, Lord Harris announced that the mine was giving "encouraging indications," and this may mean that the dykes are being successfully passed through, and development in the western area and lower levels is favourable. Whether the grade can be maintained remains to be seen. The ore reserves in sight equal two years' supply to the present reduction works, and the life, on a conservative estimate, may be placed at some fifty years, at the present rate of working. With ore being developed in places equal to the best on other mines of the Far East Rand, the prospects of the property may safely be described as excellent." We are, of course, delighted to know that the article, from which the foregoing is an extract, helped to bring the Cinderella of Far East Rand producers out of an unmerited obscurity.

* * * *

Truth, in mail week, thus delivers itself. "As I wrote last week, the opening up of the virgin areas in the Eastern Rand—there is room for 50 or more new mines there eventually—is an urgent question in view of the waning life of the Central Rand. Sir Abe Bailey and Mr. E. A. Wallers (presiding at the Rand Mines meeting) have both made strong protests on the subject during the past week. Unfortunately party politics and the short-sighted jealousy between agricultural and mining interests which has been so big a factor in Australia, are playing a prominent part in the question.

The meeting at which the chimera of the Eastern Rand becoming one vast State mine first took shape was thus described in the *South African Mining Journal* some months ago:

A motley gathering of Socialists, Nationalists and British Citizens sat cheek and jaw on the platform of the "monster" meeting the other night to tell the Government what it should do in regard to the Far East Rand. All were agreed that the great Far East asset must be saved from the hands of the capitalists. The "British Citizens" hate the capitalist because he is concerned to be a German, the Nationalists because he is concerned to be a British Imperialist, and the Socialists because he is a Capitalist. Wherefore all were agreed that the East Rand must be saved from "Capital" by means of the State being prevailed upon to work the area itself. Several of the speakers confessed they knew little about the subject, but, having admitted that great truth, they took care not to let it embarrass their eloquence. Others expatiated upon the enormous profits the State would divert to itself out of the pockets of the numerous financiers, utterly oblivious of the risks of mining special and peculiar to the "patchy" areas of the Far East Rand, and airily agreed that the taxpayers' money could not be better employed than in exploiting the district and engaging upon the always speculative business of mining. Not a word was said about the difficulties of mining in the district, which would be accentuated rather than otherwise by the assumption of the rôle of mine owner by the State.

The *South African Mining Journal* is, of course (says *Truth*), a bigoted witness on the side of the mining houses, but there is much in its argument. At all events, it is a great pity that the quiet preparations which have been going on for the adequate opening up of the Eastern Rand should once more be arrested. It is ridiculous that fourteen years after the Boer War the South African authorities should still be in the throes of making up their minds as to the best scheme for dealing with unallocated mining ground. If *Truth* had called us a bigoted witness on the side of the mining industry, not mining houses, its judgment would have carried more weight. In other respects, however, its remarks are both opportune and sensible.

* * * *

The report of the executive committee of the Rhodesia Chamber of Mines for the month of June, 1916, states, *inter alia*, that the Rhodesia Chamber of Mines' Report. British South Africa Company has put before the executive a proposal that the company should act as brokers in London for the disposal of base metal ores produced in Rhodesia. The proposal has been approved by the executive, as it appears that facilities other than those existing at the present time are required for the disposal of Rhodesian ores. At the same time advantage is being taken of the opportunity to point out the handicaps under which the industry suffers by reason of the high cost of export, and of the necessity to encourage the development of the base metal industry by the adoption of the most liberal policy in regard to railway rates and royalty. The committee interviewed the Secretary for Mines on the 24th June, and discussed fully the question of the payment of claim licences when gold from residues, the result of previous treatment of ores, is declared. The committee found themselves unable to accept the ruling of the Mines Department that claim licences are the equivalent of a licence on production. The Secretary for Mines accorded a most courteous and patient hearing to the views of the Chamber, and promised that they would receive further full consideration.

* * * *

Some misapprehension appears to prevail with reference to the rights of the Government of the Union in respect to minerals in the Province of Natal. The mining law is materially different in that Province from what it is in other parts of the Union as far as the ownership of minerals is concerned, for, whereas in the Transvaal law, for instance, it is stated that the right of mining for and disposing of all precious metals is vested in the Crown, and that the ownership of, and the right of mining for and disposing of base metals on Crown or private land is vested in the owner of the land, the Natal law declares that the right of mining for and disposing of all minerals on land situated in that Province is vested in the Crown. The incidence of this law has been particularly emphasised latterly by reason of the fact that large oil shale areas fall within the latter province, and a

Natal Mineral Rights.

considerable claim area has been pegged on the border line between the two Provinces for the purpose of developing the shale seams. The claim area allowed on each license is of a size not exceeding 700 yards by 700 yards, equivalent to 101.239 acres, and this area refers to coal, limestone, stratified ironstone, slate, soapstone and similar minerals, as well as to oil-shale, the latter of which was included in the list as far back as 1902. The license fee for a prospecting claim is one shilling for three months, and it is stipulated that a certain amount of work must be done periodically on each claim, or an exemption may be obtained on the payment of a fee of ten shillings per month per claim. Obviously, the intention is that claim-owners shall not sit *ad libitum* upon the holdings in pursuance of a "wait and see" policy. The fact that oil shale is subject to licensing and other conditions has led to some interesting moves in connection with some large blocks of claims not far from the delightful little village of Lüneburg, in respect to which attempts have been made to carry out a scheme which is not altogether dissimilar from the jumping methods which prevailed on the Rand in early days. In some cases, however, it appears that the Crown title has been waived in accordance with agreements mutually entered into between the Government and the owners, and it is said that a case has cropped up lately in which pegging has inadvertently taken place, and claims have been held, on ground which has thus reverted to the owners. It seems clear that the pegging referred to could not well have been carried out without authority of some sort. It is probable that in ordinary circumstances the affair could have been settled amicably between all the parties concerned in a very little time; but so much ill-feeling appears to prevail in that district between rival option-holders and option-seekers generally that it is not unlikely that the lawyers will be able to have a "look in" in this instance. With reference to the authority referred to, it is a condition that the permission of the owner shall be obtained when a prospecting licence is issued so that the fact of *mala fides* is not altogether apparent in this business.

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Among the interesting information given in the report of the Hollinger Gold Mines, operating at Porcupine, Ontario, for 1915, is the following comparison of prices for supplies at the beginning of the War and at present:—

		MINE SUPPLIES.	
		Price	Advance.
		Aug. 1914.	Per cent.
		Aug. 1914.	Per cent.
Material and unit.			
Connecting wire, lb.		\$0.50	40
Dynamite (40 per cent.), cwt.		13.10	50
Dynamite (50 per cent.), cwt.		14.60	52½
Detonators, 1,000		12.60	215
Fuse (safety), case		23.95	18
Fuse (time), 1,000		5.40	90
Rails, ton		43.00	33
Shovels, dozen		7.60	18
Steel (drill), lb.		0.07	30
Steel (hollow), lb.		0.12	33
Track-pikes, keg		3.25	39
Track bolts, keg		6.00	50
		MILL SUPPLIES.	
		Price	Advance.
		Aug. 1914.	Per cent.
		Aug. 1914.	Per cent.
Borax, lb.		\$0.11½	47
Canide, lb.		0.015	7
Crucibles		0.07½	74
Cams, each		20.26	14½
Cam-shafts, each		83.00	81
Lead acetate, cwt.		8.10	75
Liners (tube-mill), lb.		0.03½	8
Litharge, cwt.		5.65	127
Lead (pig), cwt.		5.65	78
Muriatic acid, cwt.		1.70	80
Pebbles (Danish), ton		22.03	22
Shoes and dies, cwt.		4.85	37
Zinc dust, lb.		0.06½	427
Zinc, spelter, cwt.		6.48	276
		GENERAL.	
		Price	Advance.
		Aug. 1914.	Per cent.
		Aug. 1914.	Per cent.
Machinery and parts			10 to 40
Electrical equipment			20 to 50
Corrugated iron			50
Iron and soft steel			50
Tool-steel			500
Pipe			60
Nails			40
Lubricating oils			10
Fuel-oil			51
Gasoline			65

TOPICS OF THE WEEK.

MINES AND MEN.

It is not for us to sit in judgment on those representatives of certain Rand workers who have seized these critical times to revive controversial questions of hours and rates of pay. It must suffice that for some months back these questions have been discussed between the men and the representatives of the mining companies, and the result was embodied in a lengthy report issued by the Chamber of Mines early this week. First, in regard to the request by the members of the engineers, mechanics, and allied trades employed on the mines, for an increase in wages and shorter hours, the Chamber of Mines offered a war bonus to be extended only to married men and to single men with dependents wholly dependent on them. The amount of the bonus so far as mechanics are concerned is 30s. a month on a 48 hours' week. When the bonus ceases, three months after the war, the Chamber will introduce a 48 hours' week at 2s. 6d. per hour. On the overtime question they declined to concede anything. It appears that the unions took ballots during last week, and there was an almost unanimous vote against the differential treatment of married and single men, but otherwise it was decided that, particularly in view of the 48 hours' week being introduced, the offer should be accepted. A deputation from the unions met the Minister of Mines on Saturday, in the hope of persuading him to use his influence with the Chamber on the principle of differentiation. The Minister undertook to see the representatives of the Chamber, but he pointed out that employers and workmen alike should do their utmost to avoid any dispute, which might have serious consequences, particularly at the present time. From the published correspondence, it seems that the negotiations commenced with a letter from the Federation, dated April 17, 1916, asking for the following concessions: (a) A 48-hour working week, to substitute the present 50-hour maximum. Such week to terminate not later than noon on Saturdays. (b) Time and a half for overtime (except Sundays, which shall be paid for at double rate), to be substituted for the present time and a quarter and bonus hour. (c) The rate per hour to be 2s. 10d. for mechanics. After a meeting between representatives of the Chamber and the unions, the latter submitted a memorandum in support of their claims. They claimed the increased wages for the following reasons: (1) The present state of the labour market. (2) The increased cost of living. (3) The depreciation in the value of the £. (4) The steady diminution of the average working man's wages, while the technical and clerical staffs had gradually improved their average yearly earnings. Under this heading the memorandum proceeds: "Since the industry is prosperous and output and profits continue to improve, the workers cannot be accused of any lack of patriotism in pressing their just claims. In fact, mine-workers are asking for rates of wage, overtime and hours which the Municipality of Johannesburg almost unanimously voted to mechanics in their employ at yesterday's Council meeting. The Durban Municipality, the Government, the banks, and other large employers of labour have already granted increases in one form or other, and theirs is a worthy and patriotic example which, we trust, the mining industry will follow." In their reply to the substantial concessions offered by the Chamber, the executives of the unions reported that they would be prepared to recommend the acceptance of the principle of a "war bonus" as against an alteration in the standard rate of wages, but could not recommend the acceptance of the amount offered nor of the conditions attached thereto. A war bonus of £1 10s. in face of an admitted increase of £3 6s. in the cost of living was "quite inadequate," while the partial application of any war bonus was inimical to the interests of the craft. Whatever bonus was agreed to could only on principle be acceptable if extended to all mechanics, whether married or single and whatever their monthly earnings might be. Regarding the 48-hour week, they would recommend the acceptance of this offer provided the present stopping times on Saturdays of underground mechanics were not altered to a later time of the day. On the question of overtime, they maintained their demands, but would meet the difficulty in the same manner as in the proposed reduc-

of hours. Changes in overtime rates might, for similar reasons, synchronise with the reduction of hours. Replying to these further arguments, the Chamber pointed out that the war had not affected single men without dependents to any appreciable extent. Also that the principle of the exclusion of single men without dependents from the operation of the war bonus was not new, being contained in the post agreement of July, 1915, which was adopted by the employers. As regards the amount of the bonus proposed to be paid, it appeared to the Chamber to be a sound argument that the amount should decrease as the amount of wages earned by the individual increases. The Chamber agreed with the unions' suggestion with reference to the 18 hours' week, but was unable to modify its previous decision and recommend any further increase in the rate of payment for overtime. And there, for the moment, the matter rests. However protracted the discussion may be, we trust it will be continued in the same friendly spirit; and that those who are responsible for the untimely agitation will take to heart the sincere exhortation of the Minister of Mines.

AN INDUSTRIAL AWAKENING.

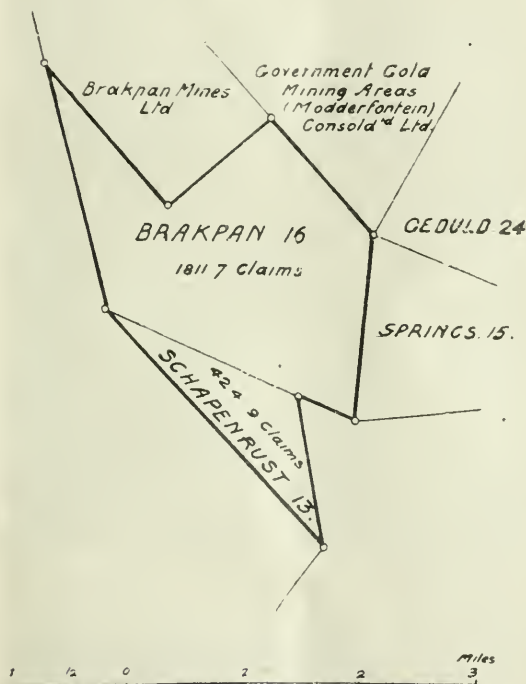
FEW more valuable documents have come before us of late than the first interim report of the Rhodesia Munitions and Resources Committee. From it we learn that the Rhodesia Munitions Committee was formed in Bulawayo in November, 1915, on the invitation of the Government Munitions and Industries Committee of the Union, as one of the branches of that body. The latter Committee originated through a request from the Imperial Minister of Munitions, who had asked for assistance from South Africa in the direct manufacture either of munitions or of products for local requirements, as any work carried out on these lines would, he stated, help to relieve the stress on Home industries. A Central Committee was at once formed in Johannesburg, with various branches throughout the Union, and, as stated, one was created in Bulawayo. The lines which this Committee have been investigating and working on to date may be classified as under: Inventions; assistance to military authorities; industries and resources of the country (existing or possible). The volume of the work has continuously increased, particularly in the investigation of the industries and resources of the country. The Rhodesian Government has from the first recognised the very useful work that was being carried on and recently agreed that a stage had been reached which justified official recognition. This has been approved by the Administrator and a Government representative is being appointed to the Committee. From the 1st of July, 1916, the committee altered its name to the "Rhodesia Munitions and Resources Committee." The report shows that a complete list of all workshop tools and appliances in Rhodesia was compiled to ascertain what facilities were available for the possible manufacture of munitions in the territory. It was found, however, that the most useful assistance which could be given to the authorities would be through the utilisation, to their utmost extent, of such tools and appliances as were available for the repairs of machinery, etc., generally, and in the making of spare parts of mining, railway, and other requirements throughout the country. This it was seen would help to relieve the stress on Home industries, and would consequently be of considerable assistance to the Imperial authorities. It has been found that work in this direction has largely increased and continues to grow, and many machinery parts which were previously imported are now made locally. Suggestions were sent to the Committee regarding the manufacture of munitions by the use of existing workshops and with voluntary labour, during such time as the various workshops were not employed on other requirements. Very large numbers of mechanics were ready to help in this connection, but a difficulty presented itself in the supply of raw material and also of special tools. It appears that the Imperial authorities are fully aware of the country's readiness to help, but state that the most useful assistance it could give would be in manufacturing, as far as possible, new and spare parts of machinery and other articles which are imported from overseas. This, as already stated, would help to relieve

the stress on Home workshops, and release men and shipping and so contribute indirectly towards the provision of munitions and equipment necessary for the successful termination of the war. It was very soon seen that the section dealing with the industries and resources of the country was by far the most important. Interviews were held with the visiting directors of the B.S.A. Company, the Administrator, Brigadier Generals Edwards and Northey, and others, all of whom considered that the exploitation of the country's resources would be of the greatest importance to itself as well as to the Empire, and that anything which could be done to relieve pressure on workshops at Home would be of the utmost value. The lines which are at present being followed in regard to this work are:—Investigation as to what is being done locally in the manufacturing of goods and materials which were previously imported. Ascertaining the possibilities of substitutes for imported articles. Investigating and tabulating the resources of the country with a view to the extension of existing industries and the creation of new ones. In regard to the first the objective aimed at is the collection of all possible information in regard to the economies of Rhodesian natural resources, present and potential local industries, exports, etc., and to publish such for the benefit of the community generally. The Union Government Committee is working on these lines also, and it is believed that by close co-operation and interchange of ideas mutual benefit to both countries will accrue, and the Rhodesian Government is using its influence with the Union Government to further this. The chief export from Southern Rhodesia, since the opening up of the country, has, of course, been gold. In regard to this, the report says:—"History shows that this is not, however, to be relied on as a permanent industry, and no country can remain financially stable if it depends too long on gold production alone for success. It is an excellent asset to possess and it assists materially in starting up any country, but before and during the process of gold exhaustion it is necessary to establish other sound and permanent industries to prevent a state of bankruptcy arising. An absolute essential for the financial success of a country is the firm establishment of a profitable export trade, and in Rhodesia such a trade should be based on raw materials produced in the country and the manufacture of goods from such products." To ensure success and stability for exports they must be landed at the point of consumption at such a price as will not only enable them to compete with similar goods from elsewhere, but they must also return a fair and equitable profit to the producer. This can only be done, in a country like Rhodesia, situated so far from coastal ports, and having long distances by rail to cover so as to reach other consuming centres in the continent, through most favourable railway rates. The report proceeds: "The greatest need of Rhodesia is population. The country cannot possibly prosper without it, but it can only be brought to us through reasonable attractions, such as are offered by other countries. The chief of these would be cheap living, and to ensure this we must have lower carrying rates on our railways than exist to-day. It has been thought desirable that some particulars of the chief objects which have come under the scope of the committee's investigations should be given, and on most of these short articles have been written or compiled by members of the committee. These articles will, it is hoped, be found of interest to all those who believe in the great resources Rhodesia possesses. There is undoubtedly a very strong and growing feeling throughout the whole of the Empire that it is necessary for all of us to bestir ourselves and to take stock of our resources, and it is time that we in Rhodesia were showing with the rest of South Africa that there is ample opportunity for the profitable employment of capital in this part of the world. We have been too long content with our mineral wealth, but that alone is insufficient to enable us to bring in the population we require for the success we are entitled to look for. The efforts of the committee have mainly therefore been directed towards showing the possibilities that lie in the development of other industries, and the members will feel encouraged to continue their work if it is seen they have aroused some interest in the subject." In this there is a message not merely for Rhodesia but for all South Africa.

A NEW FAR EAST RAND STATE MINE.

Tenders Again Called for Brakpan Deep Areas—A Pointer to Recent "C.M.S." Activity.

THE Government has decided to offer the remaining portion of the farm Brakpan, i.e., that south of the mynypacht, to public tender, and an announcement to that effect will be found in the next issue of the *Government Gazette*. A glance at the attached plan will show the area in question, and it will be remembered that it formed part of ground offered to public tender some time ago. The area would seem to fall naturally within the sphere of future operations of the Brakpan Mines, and it is hardly likely that any competitor will be in position to better the offer of that company. The new Rand Selection Corporation, Ltd., which, it will be remembered, contemplates undertaking enterprises of this kind will doubtless play a large part in ensuring the success of its offspring, the Brakpan Mines. The present lease does not, of course, include the Schapenrust ground.



In this connection it may be recalled that in the present Gold Law a scheme for exploitation of areas under a system of Government leases was added to the method of individual pegging. The first area for which tenders were called was tendered for by various parties, and eventually secured by the Barnato group. This area rejoices in the clumsy title of the Government Gold Mining Areas (Modderfontein) Consolidated, Ltd. The company was registered in 1910 with a capital of £1,400,000 and secured the exclusive right to mine the precious metal upon 2,633 claims of the farm Modderfontein No. 167, in the mining district of Boksburg. The consideration payable to the Government for cession of the claims was a sliding scale tax on profits. Following is a summary of the outstanding features of the agreement signed by the Government and the Johannesburg Consolidated Investment Company:—Under the conditions of lease the company shall pay to the Government (a) a tax on the annual net produce obtained from the working of the said claims calculated in accordance with the sliding scale re-

ferred to hereafter; and (b) an additional tax as below. Such net produce shall be taken to be the value of the precious metals produced after deduction therefrom of the cost of production and of such sums as may be allowed in respect of the exhaustion of capital. The sliding scale before mentioned shall be such that under it the tax payable to the Government shall bear the same ratio to the net produce as the latter bears to the value of the precious metals produced; provided, however, that in no case shall the tax payable to the Government under such sliding scale be less than 10 per cent. or more than 50 per cent. of such net produce. The additional tax referred to above shall be such that whatever amount may be payable to the Government in accordance with the sliding scale, the lessee shall pay to the Government a further amount computed as follows:—(a) Seven and a half per cent. of the tax payable under the sliding scale, if such a tax does not exceed 20 per cent. of the net produce; (b) 10 per cent. if such tax exceeds 20 per cent. but does not exceed 33½ per cent.; (c) 17½ per cent. if such tax exceeds 33½ per cent. but does not exceed 49 per cent.; (d) 22½ per cent. if such tax exceeds 49 per cent. of the net produce. No tax is payable under the Profits Tax (Gold Mining) Proclamation, 1902. On the termination of the lease by the exhaustion of the precious metals, the Government shall be entitled to 10 per cent. of the net proceeds derived from the disposal of or of the value of the residual plant, buildings and equipment of the company.

THE BRAKPAN AND WITPOORT LEASES.

The terms of the lease were modified in the case of the Brakpan areas, when offered before, but although applications were called for as far back as the middle of October, 1912, no response was made to an invitation which the Government doubtless thought to be sufficiently alluring. The time limit was originally put at the 28th day of February, 1913, but since no tender was received by that date, it appears that a second notice was issued on 8th March, which stated that the time limit had been extended to the 30th of June, 1913, and allowed it to be understood that a less stringent attitude would be taken up by the Treasury in the event of the guaranteed capital not being provided within a specified time, and that the question of the Government share of the profits would be susceptible of discussion as to the manner in which it might be paid. These revised conditions, however, did not seemingly appeal to capital; at any rate, they brought forward no response. Only a few days before the modified Brakpan proposals were placed before the public, applications were invited for tenders in connection with the proposed lease of 1,180 claims on the adjacent farm, Witpoort. Here, in spite of the depressing example of the previous failure, and at a time when the unsuitability of the terms of the Brakpan-Schapenrust lease must have been engaging the profound attention of the Minister of Mines, an exactly similar set of proposals were made for the Witpoort scheme. The latter was, of course, a smaller undertaking, in which less working capital, and a much smaller guarantee were involved, but, pro rata, the objections to the old Brakpan-Schapenrust terms were, presumably, as real in one case as they were in the other.

City and Suburban.

The report of the directors of the City and Suburban Gold Mining and Estate Company for the quarter ended June 30 shows that the linear development was 2,519 feet. The recovery from milling and cyaniding amounted to 36,692·710ozs., equalling 8·910 dwts. per ton. The profit for the quarter amounted to £81,951, as compared with £59,433 in the last quarter. The development for the quarter resulted in very good values being shown in the main reef leader. An interim dividend of 5s. per share has been declared, payable to all shareholders registered on June 30.

THE FUTURE OF THE NEW KLEINFONTEIN.

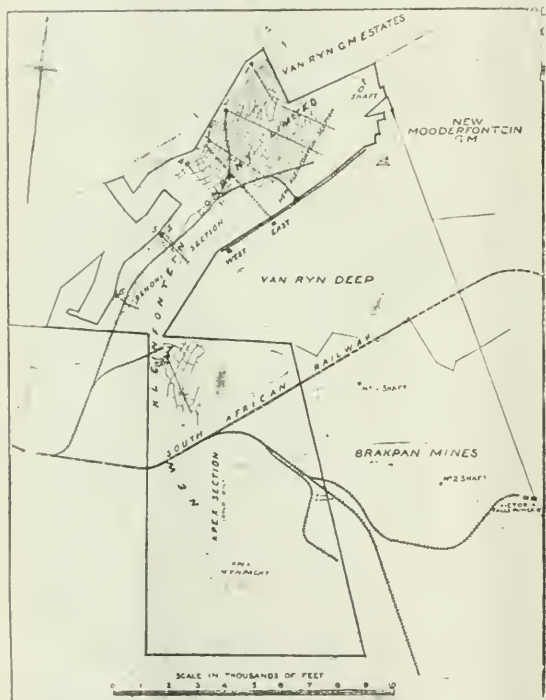
Record Outputs, Tonnages Treated and Profits in Sight—Successful Start with Apex-Benoni Plant—Excellent Dividend Prospects and Long Life.

There is reason to believe that the satisfactory initial work of the Apex-Benoni plant last month marks the beginning of a new era for the New Kleinfontein. As the monthly report issued this week, points out, the 25,000 ton additional crushing capacity which the new mill means, can hardly be expected to be up to normal before September or October, and possibly the next distribution of profits may not appreciably reflect the improved condition of affairs. The amelioration in the outlook is such, however, as to invite attention now. It is not too much to say that record outputs, tonnages treated, and profits are in sight, and a most prosperous future assured to the company. The last annual report of the consulting engineer shows that the ore reserves are valued at about 26s. per ton and the costs placed at 17s., so that an output of, say, a million tons per annum may conceivably mean 25 per cent. in dividends after duly allowing for all the charges that may be made against

the returns for July. Some remarks from the chairman's speech at the last annual meeting have to day an interesting significance. *Inter alia*, Col. Dalrymple said:—"Although we anticipate that the new reduction works, which will be capable of treating 25,000 tons per month, will commence running in July next, I wish to warn shareholders that they must not expect immediate results from this plant. Experience tells us that during the first three or four months of running a new plant a very great amount of gold is absorbed by the plant; and, unless we are in a position to counteract this, by putting high grade ore through the mill, which unfortunately we are not, we must not expect immediate returns corresponding with the tonnage and grade treated. As regards the values found in the Apex section, on which our future depends so much, I may say that there are, in this part of the mine, indications of the presence of local enrichments, similar to those met with in other mines in the same district, and the results for the past few weeks have been of a distinctly encouraging nature."

At the same meeting, in reply to questions put by Mr. W. T. Birch, the chairman said the question of the consideration of the interim dividend, which was customary to take place in June, had not been before the board, and there were great reasons why the company should pay its interim dividend, though smaller than it was a twelvemonth ago, because they were nearer the position when they had increased their stamp power, and were also gradually creeping through the heavy capital expenditure. He had no doubt the interim dividend would be discussed very shortly, and that the policy would be to continue paying small dividends until they were able to get the full benefit of the big reduction works, and also the advance development now in hand. In regard to the depth of the Apex shaft, the chairman gave information as to the depths reached. There was no doubt that there were still bodies of high grade ore in the eastern section, but they were getting pretty well developed there now, and he did not think the bodies were just as rich as they were, on balance. He thought they had more low grade than high grade developed than they had reason to expect from past experience. But they were still coming into good ore, and shareholders knew what their neighbours Van Ryn Deep had been doing. He thought they had reason to expect that they would get a fair share of the balance on their development.

In another part of his speech, the chairman said:—"With regard to the operations on the Apex section, on which the future success of your company will mainly depend, the heavy capital expenditure incurred in shaft sinking and development, perhaps calls for some explanation of the policy of the board, as regards the opening up of this section. When this large property, equal to 1,115 claims, was first acquired, the necessity for extensive advance development work was foreshadowed, and it was this which your directors had in mind when they endeavoured to increase the capital of the company—through a pro rata issue to shareholders—in order to provide funds to meet the cost of renovation of the Benoni reduction works, shifting the south shaft equipment, and effecting the connection between the Apex and Benoni shafts, thus giving a second outlet for the Apex workings. If the share issue had been carried through it would only have been necessary to finance the Apex development programme out of profits; whereas, owing to the abandonment of the scheme—due to the onerous conditions imposed by the Imperial Treasury—the total cost of the plant and development has to be provided from this scheme, and is a very heavy tax on present shareholders. It is hoped and believed that, ultimately, the shareholders will feel the benefit of all this expenditure, through a substantial increase in dividends, and this increase should be the greater through our having avoided increasing the capital of the company. I may perhaps here mention that the total divi-



gross profits. If we reduce the ore reserves to about 23s. recovery, and allow 16s. for working costs, 20 per cent. may be made. In a property of this nature, however, with such comparatively low grade ore deposits, it is probable that a higher grade of ore may be won from the Apex section. Should this possibility be realized and, say, another dwt. per ton added to the grade, profits up to 35 or 40 per cent. might be earned—a not unheard of contingency on the Far East Rand, and one giving an attractive speculative value to these estimates. No "life" estimate has been made public, but if we take it on the basis of the stoping width which is about 60 inches, a yield of 5,500 tons per foot per claim may be anticipated. Over only 1,000 claims, and after allowing for waste areas, etc., 27,500,000 tons, or about 27 years' ore, may be looked for. Little allowance is therefore required for annual redemption. Read in the light of

dends paid by the company, since its flotation, amount to £1,650,433. It is of the utmost importance to your company that this area acquired from the Apex Mines—which up to the present has been barely touched—should be explored with all reasonable speed.”

In the middle of last year, so that there should be no further delay, the board commenced an extensive programme of development in this section. The further sinking of the main incline for a short distance and the general clearing up of the workings which have been in disuse for so long was put in hand. We then commenced to attack the property at widely different points, namely, in drives Nos. 1 and O1 and 5 and 6 running west, a winze on the third level east adjoining the western boundary of the Van Ryn Deep, and a main drive to develop the zone along the southern boundary of the central or Benoni sections of the mine, with a view of proving a large amount of virgin ground immediately below the old workings of the Benoni Company. All these workings, consisting as they do of drives in pairs or of individual

tunnels into virgin ground, are driven in the first instance purely for exploratory purposes. It follows that, while a very considerable amount of country has been explored no large amount of ore has yet been blocked out, and, as you will have noticed from the manager's report, we were unable at the end of the financial year to add anything to the ore reserves in this section. Ultimately raises and winzes connecting the various levels and intermediate drives where necessary will block off the ground, and tonnage will then be included in the ore reserves as a result of the exploratory work now in hand. Another purpose is served by this method of opening up the country. It is well known that in the eastern area of the Witwatersrand goldfields the payable bodies of ore are frequently separated by areas of quite unpayable ore, and if the limits of the payable and unpayable ore can be located in any measure by means of preliminary drives at great distance apart, it is clear that the additional development necessary to open up the payable sections can be confined, in the first instance at all events, to only such sections as have yielded payable results along the advanced drives. In this way it is hoped that a great amount of unnecessary development work will be avoided.

British Trade in South Africa.

Mr. W. G. Wickham, His Majesty's Trade Commissioner in South Africa, has recently completed a tour of the principal towns of the Union and Rhodesia, in the course of which he met a number of leading commercial men and bodies, and was enabled to gather a good deal of interesting information in reference to the trade position and prospects. Assuming his office in April last, Mr. Wickham devoted the first few months after his arrival to keeping in touch with the Union Government during the Parliamentary session. He afterwards carried out a seven weeks' tour, which embraced visits to Mossel Bay, Port Elizabeth, Bloemfontein, Durban, Maritzburg, Johannesburg, Pretoria, Rhodesia, and Kimberley. In each centre he came into contact with some of the principal business men and traders, and had informal chats with representatives of the Chambers of Commerce. He had a very agreeable reception everywhere, but necessarily, during the brief time at his disposal, it was impossible to go deeply into the questions with which his work is associated in this country. This Mr. Wickham hopes to do upon future visits of a more protracted nature to the different centres. Asked by a *Cape Times* reporter what his opinion was as to the trade position here generally, Mr. Wickham said that he was favourably impressed. He thought, on the whole, it was "quietly prosperous." In Johannesburg the mining industry was not merely working in a normal way, but was employed at fullest possible pressure. In Rhodesia the prevailing impression was that things were rather quieter than usual, but this might be ascribed to the enormous number of men, relatively to the white population, who had gone to the front. Formerly he spent four years in New Zealand, and during his travels was struck with the enormous distances and the sparseness of the population; but during his tour in South Africa these characteristics had been even more forcibly brought home to him. The immense areas of undeveloped land showed that there was ample room for expansion in South Africa. Touching upon the prospects for the extension of British trade, Mr. Wickham pointed out that, in consequence of the demands for munitions, British manufacturers were not at present able to give much attention to this question. He did not think that German goods had obtained a very big hold in this country; but there was no doubt that, when war broke out, it was increasing. In some cases the Germans had been supplying a good article of real value. When considering German trade, one had to divide it by a very sharp line into two sections. There was a class of goods in which the Germans gave a better article at an equal or lower price, and there was also the other class of German competition in which articles of inferior value or no value at all were supplied. In the former class were electrical supplies, dyes, chemicals, optical glass, scientific instruments, etc. In the other section could be placed cheap cutlery, cheap textiles, kaffir truck, and goods of that kind. "When people talk generalities about German trade," Mr. Wickham added, "they do not distinguish between these two sections, and they are apt to get rather involved and inaccurate notions. As regards the lower-grade stuff, I do not wish to see British manufacturers taking up these lines, which are cheap imitations of good articles. Why should we waste our time in producing cheap copies of our own goods?" Asked what his opinion was in regard to the supplanting of enemy trade by British-made goods, Mr. Wickham said that in the present position of affairs, owing to the war, it was difficult to form any definite idea upon the subject. As far as British manufacturers had gone into the question of supplying different classes of enemy goods, there were a number of articles which had had to be made for munition purposes. As far as he could gather, there was nothing that Germany had supplied which could not be supplied from other countries. It might be a question of price. There were very few lines in which the German manufacturer had had an absolute monopoly. One point which was often overlooked by people in considering this matter was that Belgium had been making a good many articles in competition with Germany, for instance, cheap glassware, window glass, plate glass, zinc, and sundry other articles. He believed that Belgium had been the largest producer of zinc prior to the war. What might happen when peace had once more been restored nobody, of course, could foresee, but there was no doubt that the avenues for British trade would be extended.

The Sheba in July.

The following are particulars of the gold output of the Sheba Mine for the month of July:—Tons crushed, 6,753; fine gold, 2,106ozs.; working expenses, £7,280; development, £1,520; estimated loss, £340; capital expenditure, £522.

The Use of Iron for Transmission Lines.

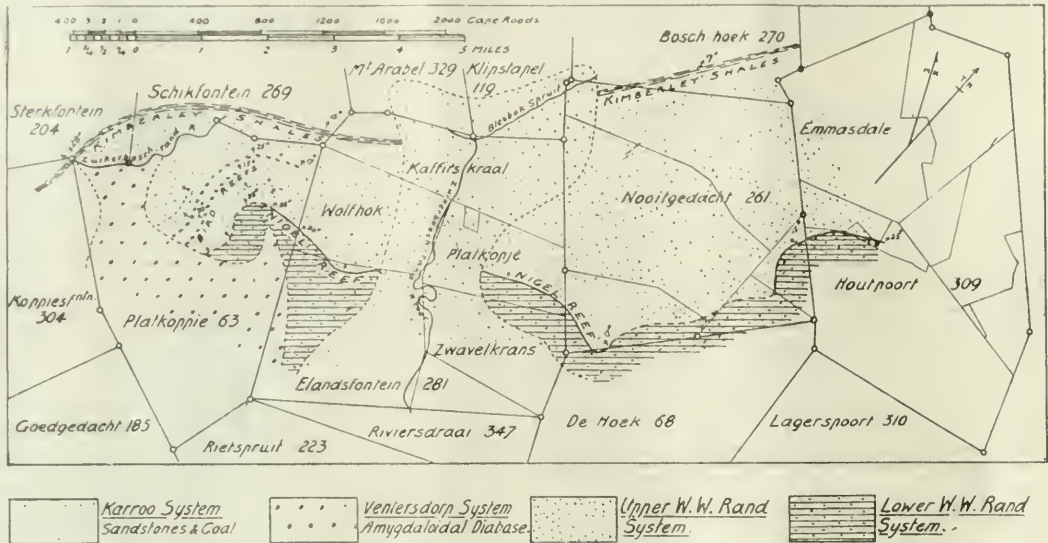
The substitution of iron for copper conductors appears to be proceeding on a large scale in Germany at the present time, and tentative work in this direction has also been going on for some time in the United States, certain of the power companies in the States having been experimenting with iron for minor work where the length of line was considerable with respect to the load carried. Reports of the operation of these iron lines have been collected from a number of supply companies, and are published in the *Electrical World*. It appears that for lines carrying light loads, such as often obtains with new lines, or extensions, or lines in scattered districts, entirely satisfactory results can be reached with iron, provided the load does not increase to such an extent that the drop becomes unduly great. No attempts appear to have been made to use iron for main transmission lines; probably the losses would be too great to give any economy except under very abnormal conditions. The results hitherto obtained point to the probability that iron lines will not find any permanent place, but are only economical as temporary structures while the price of copper is unusually high, and even then only for light loads. For example, the United Electric Light and Water Company, Waterbury, find that it is cheaper for certain small loads to use a line of iron, with iron at 8-25 cents per lb., than one of copper when that metal is 15 cents per lb. The Monmouth (Ill.) Public Service Company operates a three-phase 13,200-volt, iron-wire line about twelve miles long, and constructed with No. 6 iron wire. The regulation of the line is satisfactory without the use of a night feeder regulator. The Public Service Company of Northern Illinois uses iron wire on the extreme ends of lines carrying light loads, the lines being built of No. 8 wire strung on 25-ft. or 30-ft. poles. The Nebraska Gas and Electric Company, Omaha, operates three iron-wire transmission lines, one being seven miles long and another 28 miles long, with satisfactory results. The sizes of iron wire used are 7-16 in., $\frac{3}{4}$ in., and 5-16 in. The line is two-conductor, transposed every two miles and carried on 30-ft. wood poles spaced 125 ft. The operating voltage is 16,500 and the average load 70 kw. To minimise the cost of providing circuits over which to supply energy to irrigation motors in sparsely-settled districts, the Pacific Power and Light Company has made use of No. 8 copper-clad wire and No. 8 iron wire. The former was used for the reason that it was under normal copper prices—about one-third cheaper than copper wire. Experience has shown, however, that future growth must be taken into consideration before adopting such construction, since in many cases the load may grow to such proportions that the voltage drop in the copper-clad steel lines will be excessive. On short 6,000-volt branch lines and other circuits where the load is light, the company has not experienced any trouble with the No. 8 iron wire construction due to excessive voltage drop. The Southern California Edison Company has used iron wire on short branch circuits for 11,000-volt service, where the distance did not exceed a mile and the load not more than 50 kw. It has been found, however, that certain operating troubles can be traced to the use of this construction, and it has therefore been discontinued owing to the high cost of reverting to copper when a branch is afterwards developed into a main line.

THE NIGEL REEF ON PLATKOPPIE.

Map Showing Precise Location of the Outcrop Obtained from Actual Survey.

This accompanying map accompanies the report of Dr. G. S. Collyer, made upon the property of the Platkoppie Syndicate, Limited, which was published in our last issue. It covers a considerable area lying to the south-west of the town of Heidelberg, the town lands of which are immediately adjacent to the short boundary line which marks the northern

limits and Platkoppie, and the patch of amygdaloidal diabase which concerns the south-western extension of the reef on Platkoppie, No. 63. The course of the Nigel reef itself, together with that of the Bird reef horizon and the prominent band of Kimberley shales which form so valuable a marker in these parts, are clearly shown, together with the



PLAN SHOWING THE EXTENSION OF THE MAIN REEF SERIES (NIGEL REEF) SOUTH-WEST OF HEIDELBERG.

limit of the farm Houtpoort No. 309. The Heidelberg railway Station is situated within a very short distance of the same boundary. The principal features of the map, it will be observed, are the tongue of coal-bearing sandstones, which overlies the Nigel outcrop in the neighbourhood of Zwavel-

krans and Platkoppie, and the patch of amygdaloidal diabase which concerns the south-western extension of the reef on Platkoppie, No. 63. The course of the Nigel reef itself, together with that of the Bird reef horizon and the prominent band of Kimberley shales which form so valuable a marker in these parts, are clearly shown, together with the

Mining Cause Celebre.

LONGEST LAW SUIT OF RECENT TIMES.

The evidence in *The Amalgamated Properties of Rhodesia (1913), (Limited) v. The Globe and Phoenix Gold Mining Company (Limited)*, was concluded on April 3, and the further hearing of the case was adjourned until May 9th, when legal arguments were begun. This action, which raises difficult questions as to extra-lateral rights in gold mining, began on October 26 last, and has proceeded before Mr. Justice Eve almost continuously since that date. In mail week was the 87th day of hearing, so that already it is by far the longest action of recent times. It is, indeed, the longest since the Tichborne civil action of 1873-74, which lasted 188 days. Since that action until the present the longest hearing was probably that in *Belt v. Lawes*, the famous libel action by a sculptor, tried in 1882, which occupied 43 days. This was the last action tried at Westminster Hall. Baron Huddleston in his summing-up referred to the "presumptuous and ignorant criticism" which had appeared in the Press as to the length of the trial, and pointed out that it was impossible in a shorter time to deal adequately with the "vast congeries of matter," which required investigation. Nevertheless, on the day after the verdict, *The Times* expressed the hope that "actions to be tried in the new Courts of Justice," would not be "of the magnitude of the last

action tried at Westminster Hall. Otherwise judicial would become almost as serious an evil as legislative obstruction." This hope, on the whole, has been realised. But the "vast congeries of matter," to which Baron Huddleston alluded was as nothing compared with that which it has been necessary to investigate in the Rhodesian case. Nearly 50,000 questions have been put to witnesses. One witness was in the box for 16 days, and was asked more than 10,000 questions. Sketches, maps, and plans innumerable have been referred to, and the reef (or reefs) in question have been traced to a depth of 2,000 feet. The costs of the proceedings have been stated to amount to about £1,000 a day.—*The Times*.

Zaaiplaats Tin.

The results for the month of July, 1916, were as follows. Days run, 28 days; ore milled, 2,957 short tons; residues re-treated, 153 short tons; concentrates won, 31 long tons; average value of concentrates, 69 per cent. metallic tin; estimated loss for the month, £1,345 6s. 2d.; add adjustments in respect of estimated values of previous shipments, £261 9s.; loss declared for the month, £1,069 15s. 2d.; capital expenditure, nil. Note.—Revenue for the month has been calculated on the basis of tin at £161 per ton.

HINTS FOR SMALL WORKERS.

A Series of Valuable Recommendations Regarding Economies for Small Mines.*

A CONSIDERABLE number of small mines in Rhodesia are owned (or leased) and worked by men who have not had training in either mining, mechanics or metallurgy, and these few notes have been compiled in the hope that they may be of some assistance to such individuals in the economical working of their properties. To assist in gaining access to or egress from stopes, timbers are often fixed between hanging and foot walls or short jumpers fixed in either wall. In many cases these are placed at inconvenient distances apart, making it awkward to climb out. A result of this is that a miner when blasting in such a stope has to use very long fuses to ensure his safety, whereas if a few extra timbers were put in to facilitate his movements considerable economy might be effected in the amount of fuse used.

SURFACE PLANT.

Where there is machinery running regularly on the surface it is well worth considering the installation of a small electric lighting plant to effect a saving in candles. Usually a convenient counter-shaft can be found, from which a small electric generator can be driven. A generator of two kilowatt output capacity will run about 100 sixteen-candle-power lamps, and the running costs of such lights per 24 hours should not exceed 10s. In very few cases, however, would all lights be on full time, and therefore the daily cost would be considerably less. Even in cases where no counter-shaft is available a small self-contained oil engine and generator installed will often be profitable. Truck tramping is in most cases done with two boys per truck. This is necessitated by sharp rail curves or bad grading of track. If a track is laid off with easy curves and with a grade in favour of the loaded truck of about a half per cent., one native can easily handle one 10 cubic ft. truck. Incidentally, with the track graded in favour of the load, there is natural drainage for water to the station.

ROCK DRILLING.

In a number of small mines it has been found economical to make each drill boy responsible for his own drill steel. The method usually followed is to issue to each boy sufficient drills to enable him to drill the requisite footage per shift. He carries his own steel to the face and returns it to the drill sharpener for dressing, and is responsible for recovering the same steel again from the drill sharpener. As the drills wear out, the short worn end has to be returned before a new one is issued. This system where tried has been found to be satisfactory and economical, few, if any, drills being ever left behind in the mine.

PICKS AND HAMMERS.

A very large number of picks are purchased annually by small workers, and this could be considerably decreased if instead of discarding picks as points get short new steel is welded on each end. This work can be most profitably done by collecting short picks, so that a number can be done in one job. Drilling hammers, the faces of which have got out of shape, should also be collected, as a blacksmith can face them up and re-temper them.

WIRE ROPES.

Steel wire ropes, whether used on winding engines or on windlasses, should be regularly greased, as the life of the rope is thus very considerably increased. In all cases where ropes are being ordered the full working conditions should be specified, such as: Size of winding drum, diameter of headgear pulley; incline or vertical shaft; load to be lifted. This information is necessary in order to allow suppliers to specify the most economical construction of rope.

PUMPS AND BOILERS.

Pumping water from underground by steam pumps is responsible for a very large consumption of fuel, on account of the heavy condensation of steam in pipes and the large consumption of steam per horse-power with the usual positive motion pump. In a large number of cases this method of pumping cannot be avoided. In all pumping schemes, particularly from permanent stations, full consideration should be given, however, to the economies which can be effected by the installation of electric or other methods of pumping. Boilers and steam pipes should in all cases be carefully lagged with non-conducting covering, as the initial outlay will be very quickly recovered by the saving in fuel consumption and general wear and tear of boiler. Scale in boilers causes increased fuel consumption, and heavy scale endangers the life of the boiler. River waters are, as a rule, free from incrustation solids, but most underground water requires treatment before use as boiler feed. In all cases a sample of the water should be sent to an analyst, who will give a certificate of analysis with notes as to correct treatment. The quantity required for an analysis is about a Winchester quart bottleful. The cost of analysis is small, and the large majority of waters can be easily and cheaply treated, and the results achieved by such treatment fully justify the small expenditure involved. Unless absolutely unavoidable, cold feed water should not be introduced into boilers. The exhaust steam from engine, pumps, etc., should be utilised for heating the feed water. Economisers for this purpose can be purchased, but in many cases an apparatus can be constructed on the mine. An advantage in heating the feed water to about the temperature of exhaust steam is that magnesia or carbonate of lime in the water is thrown down before the water enters the boiler. If exhaust steam is introduced directly into the feed water tank, precaution should be taken to eliminate oil before the water enters the boiler. Ash pits under fire grates of boilers should be made deep, and in no case should accumulations of hot ashes be allowed to remain in them. A very large number of new fire bars are annually used, and the large majority of these are required because the old ones get bent and destroyed by hot ashes in ash pits. It is more economical to run two boilers, each with an easy load, than to force one boiler, overloaded, to do the same work.

THE MILL.

It is very essential in a battery that guides be kept well fitted to the stems. A large amount of play results in broken stems and other parts, cracked mortar boxes and very uneven wear of dies, necessitating a large percentage of metal being discarded. Amalgamating plates should be regularly dressed to keep the surface in a good condition for catching gold. Great care should, however, be exercised to make sure that too much mercury is not used. The tendency in many cases is to have the plates too wet with mercury, and the result is a loss of both mercury and gold.

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PACKINGS.

Packings, either steam or water, should be stored where dust or grit cannot get at them and in a cool damp place, as dirty packing will cause scoring of rods, making it impossible for the glands to be kept tight. When taking packing underground to pumps it is advisable to have it cut to the correct lengths on surface and carried underground in a closed canvas bag.

LUBRICATION.

Surplus oil should, wherever possible, be caught up and filtered for re-use. In steam sinking pumps a cup lubricator is generally put on top of cylinder, and the pump boy as a rule fills the lubricator from a bottle at such intervals as he considers necessary. In the large majority of cases the lubricator valve is then opened full and all the oil in the lubricator is blown through exhaust pipe almost at once. This method is not only very wasteful in oil but also prevents the cylinder and valve from getting the regular lubrication that is necessary, and consequently the life of the pump is shortened. A better method is to fix a sight feed lubricator on steam pipe either at top of shaft or at nearest station above pump, and regulate the oil feed from there. At such places the lubricator is easy of access and is not so liable to breakage as if fixed on the pump.

THE CYANIDE PLANT.

In many cases too much cyanide is used in cyanide plants, the solution being regularly over-strength. As the test for strength is so simple, there should be no excuse for this. The same remarks apply to lime, which is frequently dumped into a plant casually instead of being regularly fed in correct quantities. Excess lime, particularly lime containing magnesia, may cause complications and extra expenditure in connection with extraction and clean-up. Slags,

old crucibles and other valuable bye-products should not be put through the battery, but should be accumulated and sent to a works where they can be profitably treated. When put through a battery, in very many cases little if any recovery of the gold contents is made. The quantity treated at a time is generally small, and because no gold is noticed in the tailing of mill it is often thought that it is being recovered. It should be remembered, however, that with a small quantity going through the chances are very much against a tailing sample being taken at the exact time when the tailing from the bye-product being treated reaches the discharge outlet of plant.

ASSAYING AND SAMPLING.

In a large number of cases no regular samples are taken for fire assay, reliance being placed on panning. This answers very well in some cases, but not in all. When there is any doubt at all as to the percentage of recovery and assay values of heads and tail, samples should be taken for fire assay. If it is desired to avoid the expenditure for daily fire assays, samples can be taken, spread over, say, weekly periods. When retorting amalgam particular care should be taken that there is no loss of mercury. In many instances the cover of retort is not luted tight, while in others the pipe in cover of retort allows leakage of mercury vapour along the thread. If in all cases the amalgam is weighed before retorting and the sponge gold and condensed mercury weighed afterwards any loss can at once be located. When there is the slightest doubt as to efficiency in methods of working a few pounds expended is getting competent mining, metallurgical or mechanical advice is thoroughly justified and will in most cases result in considerable financial gain to the owners.

*From the Report of the Rhodesia Munitions and Resource Committee.

Goerz Group.

Results of operations on the producing mines of this group for the month of July, 1916:—

Company	Stamps.	Tons Crushed.	Total Revenue.	Revenue per ton
Goldfeld Proprietary	60	27,300	£43,442	31/10
May Consolidated	100	13,570	10,601	15/7
Middel Deep Levels	70	40,100	76,953	38/5
Princess Estate	60	23,500	29,962	25/6

Totals 290 104,470 160,958 —

Company.	Costs.		Profit.	
	Total.	Per Ton.	Total.	Per Ton
Goldfeld Proprietary	£29,353	21/6	£14,089	10/4
May Consolidated	10,147	11/11	454	/8
Middel Deep Levels	31,763	15/11	45,190	22/6
Princess Estate	28,789	24/6	1,173	1/0
Totals	£100,052		£60,906	

Glynn's Lydenburg.

The following are the particulars of the Glynn's Lydenburg output for the month of July, 1916:—Tons crushed, 4,167; yielding, 2,006·235 fine ozs.; estimated value of month's output, £12,719; estimated profit for the month, £8,104. The output and profit include £4,309, realisation of accumulated by-products.

Transvaal G.M. Estates.

The following are the particulars of the T.G.M.E. output for the month of July, 1916:—Central Mines: Tons crushed, 13,100; yielding, 6,170·267. Elandsdriit Mine: Tons crushed, 1,490; yielding, 895·905. Vaalhoek Mine: Tons crushed, 1,725; yielding, 698·555. Estimated value of month's output, £32,352. Estimated profit for the month, £11,368.

Luipaardsvlei Estate.

During the month of July, 1916, the Luipaardsvlei Estate and Gold Mining Company, Ltd., crushed 21,540 tons, the total profit won being £4,548.

Brakpan Mines.

The following information is officially supplied in regard to the July, 1916, output:—Stamps working, 140; running time, 25 days; ore crushed, 58,800 tons; tube Mills working, 10; ore hoisted, 66,740 tons; ore from dump, nil; waste sorted, 12·31 per cent.; fine gold declared, 21,592·58 ozs.; value declared, £90,869; equal to 30s. 10/89d. per ton milled; working costs, £55,726; equal to 18s. 11/45d. per ton milled; working profit, £35,143; equal to 11s. 11/44d. per ton milled.

The Nigel in July.

The returns from the Nigel Gold Mining Company for the month of July are as follows:—Tons milled, 10,300; gold, 3,202 fine ozs.; loss, £2,928.

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WRIGHT'S ROPES.

THE MANUFACTURE OF WHITE ARSENIC AS A BY-PRODUCT IN GOLD EXTRACTION.*

White arsenic (arsenious oxide) is obtained by roasting arsenical ores. The fumes produced are led through masonry chambers in which the product is deposited as a powder. This crude white arsenic is collected and resublimed in a refining furnace in order to obtain the glassy form of the substance free from impurities. The process is a simple one which involves very little technical skill. The chief uses to which compounds of arsenic are applied in South Africa are as cattle and sheep dips, insecticides (as sprays, etc.), for preserving "green" hides and in tanning (as a depilatory). Sheep dips are said to be chiefly mixtures of white arsenic and sulphur, whilst cattle dips are mostly arsenite of soda. The use of arsenite in place of proprietary dips finds increasing favour among stock-breeders. Sodium arsenite is made by boiling white arsenic with excess of caustic soda solution. As a substance of common use it is comparatively new. The details of its manufacture are not available. At the present time white arsenic is quoted in London at £30 to £40 a ton. The pre-war price averaged £16 a ton. The amount of white arsenic or of sodium arsenite imported into South Africa is not detailed in the Customs returns. But the value of sheep and cattle dips imported from overseas in 1914 was £44,231. In 1915, £67,781 worth of sheep dips and £6,324 worth of cattle dips came into the Union. The imports into Rhodesia of cattle and sheep dips were valued at £3,247 in 1914 and £4,036 in 1915. These figures are "declared values," that is overseas, and not local values. They include certain other dips, such as carbolic, which are probably of small quantity. On the other hand, arsenic compounds used in tanning, preserving, and so forth, are not included in these figures. In Rhodesia many of our gold ores are arsenical, and in treating them we allow the arsenic to go to waste; either it remains in the tailings after cyanidation, or, where the ore is roasted before cyanidation, it largely escapes into the air, where it is irretrievably lost. At one mine in particular, where the ore contains mispickel (sulpharsenide of iron), a quantity exceeding three tons of white arsenic is daily passed up the stack. This means, at a low estimate, an annual loss of perhaps £20,000 worth of white arsenic calculated at the pre-war price. Another mine roasts the arsenical concentrate of a similar ore, but does not recover the arsenic. Mispickel is present in high percentages in a number of other mines in the Gatooma, Umfali, Gwanda, Enterprise and other districts, and in some instances the mineral is so abundant that it might be collected and roasted easily on the spot. The first mines in the country which might be considered in this respect are those in which their own ores are already put through the first and most costly process in the manufacture of white arsenic, namely, grinding and roasting. Without interfering with the treatment and gold extraction, a large proportion of the arsenic which is passed through the furnace might be inexpensively collected by tapping the fumes (or a portion of them) and drawing them by induced draught through a simply-constructed brick chamber fitted with baffles and placed between the furnaces and the stack. The product so obtained would consist of a mixture of white arsenic, sulphur, ore dust, and presumably compounds of antimony, etc. The amount of

antimony contained in this sublimate would be only a small percentage of that contained in the ore since the greater part of it remains in the residue in combination with other metals as sulphantimonates. The crude sublimate would then be resublimed and the resultant glassy arsenious oxide ground and barrelled or drummed. Probably a brick reverberatory furnace fired with coke would be used for resubliming; but there are cheaper methods in practice on a small scale for refining white arsenic. The arsenious oxide is caught in a flue of the same type as that used for collecting the crude product. Obviously it would be advantageous to carry out the refining on the spot, but in certain circumstances it might be accomplished elsewhere. By collecting the fumes now produced the inconvenience of periodic choking of the stacks would be obviated. One mine in particular has certain advantages over others for the collection of white arsenic which it produces, as it roasts the concentrate of its ore only, whereas most other mines roast the whole of their ore. Consequently the fumes of the former contain less ore dust and therefore a higher percentage of arsenious oxide. Further, the ore referred to carries only a minute quantity of antimonite, which is a decided advantage. There is a very considerable shortage of cattle and sheep dips at the present time owing to shipping and labour difficulties. This shortage is likely to become more serious still. Large quantities of dips are used in South Africa and the demand is on the increase. Moreover, a local supply of arsenic would lower the price of dips and stimulate demand. An abundant cheap supply of dips would render it easy to enforce compulsory dipping of native herds. This would eventually rid the territory of cattle diseases due to ticks, and the export cattle trade would be established and safeguarded. It is therefore a matter of some urgency and seems to be well worth while for certain of our mines containing that mineral to recover and purify their arsenic, and for a small factory to be established here or at the coast (where similar work is already carried out) for the preparation of sodium arsenite and the dips, insecticides and other preparations of arsenic for which there is considerable demand in South Africa. The excess of white arsenic above local requirements if exported to England should afford a fair profit given reasonable transport charges. The manufacturers of cattle and sheep dips are very large users of white arsenic and sodium arsenite. In reply to enquiries recently made by the Committee, the Secretary for Mines and Industries of the Union of South Africa states that: "As regards white arsenic, there should be an excellent market in the Union if supplies of fair qualities can be put down at anything like a reasonable price. . . . The present, moreover, offers an exceptional opportunity for exploiting any such deposits that you may possess. I shall be glad to hear further from you regarding this arsenic, and, if sufficient development or experiment has taken place to justify my sending me an estimate as to the cost at which the material could be sold in the Union, I might possibly be in a position to supply you with more definite information as to the prospects of trade here."

*From the Report of the Rhodesia Munitions and Resources Committee.

THE POSITION OF THE MESSINA COPPER MINE.

Points from Latest Progress Report.

In the course of his quarterly report for the period ending March 31st, 1916, on the Messina, the General Manager, Mr. A. B. Emery, writes:—Development.—Vogelzang.—At the Harper Workings the prospect shaft reached a total depth below the surface of 177 feet. At the Campbell Workings driving and cross-cutting underneath the old fill disclosed no ore. The total development footage at Vogelzang for the quarter was 489 feet. Messina Mine.—The Eastern Section Development has exposed a narrow lode to the South of the main fissures. In the Central Section additional ore was developed on the seventh level Bonanza Footwall, and on the South Lode fourth and fifth level. On the eleventh level the East drive developing the Bonanza Footwall is showing patches of Glance. The total footage for the quarter amounted to 2,220 feet, or 740 feet per month, exclusive of shaft sinking. The Main No. 5 Shaft was sunk 59½ feet, making a total depth below the surface of 1,487 feet. One-half of the New Slimes Plant was completed during the period, and put in operation. The Recovery for the previous quarter was 87.31 per cent. as against 90.25 per cent. for the present quarter. Disposition.—The movement of the products during the quarter is tabulated. Total of concentrates and matte at mine, 1st January, 1916, 80,072 tons, 87.63 per cent.; produced, 3,026,857 tons; 45.73 per cent.; railed, 2,852,999 tons, 44.82 per cent.; at mine, 1st April, 1916, 253,930 tons, 53.39 per cent.; in transit, 1st January, 1916, 452,334 tons, 45.81 per cent.; railed,

2,852,999 tons, 44.82 per cent.; 3,305,333 tons, 44.96 per cent.; shipped, 2,148,428 tons, 45.22 per cent.; in transit, 1st April, 1916, 1,156,905 tons, 44.48 per cent.; at mine, 1st April, 1916, 253,930 tons, 53.39 per cent.; in country, 1st April, 1916, 1,410,835 tons, 46.09 per cent. General.—Labour.—White labour, particularly fitters, is very difficult to obtain. There is now a sufficient supply of native labour. Supplies.—The difficulty of obtaining supplies is becoming greater, but as the mine largely increased its stocks some months ago, no shortage is yet felt. Construction Work.—Improvements in Power Plant Equipment, particularly the installation of a condenser, have noticeably reduced coal consumption. Underground, the installation of electric pumps has reduced steam consumption. New underground loading bins at stations have facilitated output of ore. Lilliput Coal Mine.—The output for the Messina Coal Mine at Lilliput for the quarter was 1,817 tons.

MINING EXAMINATIONS.

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THE RHODESIAN ASBESTOS SITUATION.

THE asbestos producers in Southern Rhodesia have recently suffered considerable inconvenience through a threatened outbreak of African coast fever in the neighbourhood of Fort Victoria. On the 5th ult. the chief veterinary surgeon for the district issued an order temporarily prohibiting all movement of cattle from the Victoria township to areas which included the principal asbestos mining centres. These are situated chiefly in the Mashaba district, about thirty miles west of Fort Victoria, and the output of the mines has hitherto been almost entirely dealt with by ox transport to the railhead. The stoppage of ox transport has led to the use of donkeys, and over a score of teams of fourteen to eighteen animals are now travelling regularly to and from the mines, where there is a tendency for stocks of asbestos to accumulate. Should the restrictions regarding the movement of cattle continue in force for any length of time, they will seriously check development in one of the most

promising industries of Southern Rhodesia. Donkeys which a few months ago were purchasable in Bulawayo at £3 10s. to £5 per head are said to be worth £8 to £10 at Fort Victoria and do not exist in sufficient numbers to cope with local transport. It is gratifying to learn, however, that the chief veterinary surgeon of the district has recently issued a second report stating that after personal investigation at Rusimba's Kraal in the Chibi district, he is not nearly so uneasy about the existence of African coast fever. In the case of the two animals which showed symptoms of fever, post mortem examination showed entirely negative results. As a matter of precaution, the suspension of movement of cattle in the area notified will continue for the present, with the exception of the whole of the Victoria Commongage, which is excluded from the quarantine area. Popular opinion in the Fort Victoria district inclines to the belief that the death of some of the local native cattle is due to accidental poisoning, and the repeal of restrictions regarding movement of oxen is confidently anticipated in the course of a few weeks.

PROSPECTS OF RHODESIAN COPPER AND SULPHUR.

THE attention of prospectors is drawn to the following notes by Mr. H. T. Brett, General Manager of the Falcon Mine, Umvuma, supplied to the Rhodesia Munitions and Resources Committee. From these it will be seen that copper ores averaging 8 per cent. and upwards may now be disposed of at a profit, even if only in small parcels of 100 tons. Further, it will be gathered that there is now a local demand for pyrites containing not less than 35 per cent. sulphur. This ore should be as free as possible from quartz, and should be in as large lumps as possible, anything that passes through a quarter-inch screen not being required. Mr. Brett writes:—The Falcon Mines, Limited, have a complete copper smelting and converting plant in operation, and are prepared to purchase gold and copper bearing ores, also any ore containing not less than 70 per cent. iron pyrites. At the present high price of copper an ore running 8 per cent. copper is worth about £10 a ton. If it is possible to pick the ore up to a grade of 20 per cent. copper, the ore would be worth £25 a ton. On both these ores a very handsome profit would be made. The treatment charges on copper ores vary with the composition. A silicious ore (one containing over 50 per cent. silica) costs more for treatment than a basic

ore (one containing a preponderance of lime, iron and magnesia). It is advisable that the ore should contain at least 8 per cent. copper, and be located reasonably close to a rail-8 per cent. copper, and be located reasonably close to a railway route. An average sample of about 50lbs. weight should first be forwarded, in order that a full analysis may be made, after which the owners will be advised definitely as to the purchase terms. Should the ore contain gold and silver in appreciable quantities, so much the better, as these metals are recovered with the copper. Although there are not at the moment any bodies of copper ore large enough or sufficiently developed to furnish any great quantity of ore of the requisite grade, yet a handsome profit is obtainable where anything up to one hundred (100) tons of such ore can be picked, even if the price of copper falls considerably below its present figure. Ordinary pyritic ore (pyrites and pyrrhotine) is required for the smelting plant for fuel purposes. It is advisable that in any samples forwarded the percentage of sulphur should not be below 35, equal to about 70 per cent. iron pyrites. The general distribution of the known copper ores of Rhodesia is described by Mr. Zealley in the Ninth Annual Report of the Rhodesia Museum, 1910.

The Genesis of the Diamond.

In a paper on the "Genesis of the Diamond," Messrs. David Draper and W. H. Goodchild announce that they have reached the conclusion that not one of the three surviving theories affords an adequate and sufficient explanation of the facts of occurrence of the diamond, as they are known to-day, although each appears to contain certain elements of truth. Their general view is that sufficient attention has not been devoted hitherto to many of the problems of geo-physics and geo-chemistry that seem likely to be involved in the sequence of events, finally resulting in the presence of diamonds of great variety of size, shape and other characters in the somewhat peculiar type of rock occurring in the pipes from which the stones of economic value are obtained. The conclusions set out at the end of a long and highly technical dissertation are that:—(1) A kimberlite pipe does not differ essentially from an ordinary volcanic vent. (2) The lava is derived from an infra-granitic zone basaltic in character, eclogite, but the original lava is not necessarily either ultra-basic or highly peridotitic. (3) Minute diamonds may be present invariably as an accessory mineral in the eclogite from which the pipe material is derived, but the evidence on this point is inconclusive. (4) Towards the end of the active period of volcanicity differentiation of the magma in the vent is brought about by the sinking of early-formed crystals, principally olivine and ferro-titan pyroxenes, thus producing an ultra-basic mass in the lower regions of the vent. The ultra-basic character of kimberlite is thus due to magmatic differentiation and not to a primary derivation from an ultra-basic source. (5) After freezing of the magma in the upper regions of the vent, the molten residuum beneath the solid plug continues to be slowly impregnated with magmatic gases, chiefly water and carbon dioxide, thus hydrating the melt, lowering its viscosity and prolonging the solidification period, and at the same time effecting

extensive serpentinisation. The serpentinisation is thus due to a solution of carbon dioxide in water under pressure and introduced from below, and is not the result of weathering by downward percolating solutions. (6) During this period of process somewhat analogous to secondary enrichment occurs, resulting in the growth of larger diamonds at the expense of minute crystals. (7) The economic diamond is therefore to be regarded as essentially a secondary mineral growth in situ in the kimberlite matrix.

New Kleinfontein.

Appended are details of the operations on the property of the New Kleinfontein for the month of July: Stamps, 200; days, 29-276; tube mills, 4; tons milled, 52,700; gold recovered, 16,233-124 fine ozs.; net value, £67,367 9s. 4d.; profit, £16,736 13s. 1d.; working costs (excluding development, 17s. 5-577d.; development to working costs, 1s. 9d.; total working costs, 19s. 2-577d.; capital expenditure, New Kleinfontein section, nil; capital expenditure, Apex and Benoni sections, £10,775 9s. 3d.; maintenance, Apex and Benoni sections, nil. The details as to the running of the plant at Benoni section are as follow: Tonnage crushed, 12,600. There has been no cleaning up in the mill or cyanide works, and the usual absorption connected with the conditioning of a new plant is taking place. Gold obtained from the plates, £2,753; working expenses, £15,831; deficit, £13,078.

THE PREVENTION OF DISEASES AMONG MINERS.

"How a Miner can Avoid some Dangerous Diseases" is the subject of a circular (No. 20), by A. J. Lanza and Joseph H. White, issued by the United States Bureau of Mines, in order to call attention to the causes and the symptoms of some dangerous diseases found in mining towns, how these diseases are spread, and what precautions the miner can take against them. Most miners do not know that sickness is just as preventable as accident, and as regards some of the diseases that affect miners there need be absolutely no risk, if proper care and attention are paid to the means of prevention. The "safety first" movement has made the miner feel that each man is responsible for not only his own safety, but the safety of all around him. The same principle is true in preventing sickness. Each person is responsible for not only his own health, but the health of those around him. When he neglects or breaks one of the common-sense rules of health, he endangers not only himself, but his family and the men who work near him. The circular mentions some diseases that every year cause much sickness and death among miners, and describes the precautions that should be taken to prevent such diseases from starting and spreading.

GERMS AND FILTH.

Since germs cannot be seen, it is difficult to protect ourselves from them; but one precaution that is perhaps more helpful than any of the others is to avoid all things unclean. Real cleanliness means clean water, clean yards, clean milk, clean food, clean houses, clean air, clean bedrooms, and clean bodies. Germs and uncleanness are closely related. The throwing off of waste poisons is one of life's processes, and these poisons must not only get out of the body, but must also be removed from all possible contact with the body. Many a little mining town is in the open country, surrounded by wide stretches of forests or cleared land and plenty of pure air and sunshine; but when one or two thousand people live together on a compact area, as in the average mining village, no matter how open the surrounding country is, within the mining colony itself there are many of the elements of the city, and stinking pigsties, steaming manure heaps, smelly hencoops, stagnant puddles, decaying garbage, and neglected privies are out of place.

PURE AIR VITAL.

The value of pure, clean air is of first importance. The blood takes up oxygen from the air and unloads carbon dioxide, which is discharged from the body in breathing. This stale discharged air contains moisture and heat, and should not be immediately re-breathed until it has become purified by nature. Motion is a preventive against re-breathing stale air. When the body is at rest the air should be in motion; and this explains why it is so important to open bedroom windows every night. Draperies on the windows shut off the air, and an open iron bed without any drapings around it allows better circulation of air than the old-fashioned wooden bedstead closed in with canopies. Bedrooms should not be overcrowded, and if possible should be used for sleeping purposes only, as then the air will be fresher and the room cleaner. They should be plainly furnished, useless furniture, pictures, vases, draperies, carpets, and trinkets being excluded, as they collect dust which is thrown into the air upon the least disturbance.

DUST.

The dust that gets into houses may contain disease germs that sickly people have spit out in the streets. Neat gardens and lawns in the yards help to keep out this dust, and although it cannot be kept out entirely, all simple, practical measures that conduce to that end should be used. Impure, dirty air does its damage gradually, slowly, and silently. Its bad effects are not noticeable at once, and this is why it is a dangerous foe. Moving air is only one of nature's great purifiers; sunshine is another. The best thing to do is to keep out in the air and sunshine as much as possible; the next best thing is to open the doors and windows so that an abundance of sunshine and air will penetrate the home.

COMMON DISEASES AND THEIR PREVENTION: TUBERCULOSIS.

Tuberculosis, or consumption, is too well known to need description. It is a terrible scourge, but much of the suffering caused is needless, because the disease is preventable. Since the germs leave the lungs of the consumptive in the spittle in great numbers, millions daily, the consumptive who carelessly spits, especially around the home, furnishes the means whereby other members of the family may contract the disease, the germs being blown around in the air with the dust. If there is a consumptive in the family, there should be a special cup or paper box for the consumptive to spit into. A paper box, which can be bought cheaply, and burnt when used, is best. If a cup or glass is used, a little carbolic acid solution in the glass will make the spittle harmless. The consumptive should be furnished with paper napkins to hold over the mouth when coughing, and be then put into a paper bag, and the whole package put in the stove once a day. A person who knows that he is consumptive should never spit on the ground or anywhere carelessly, since this endangers human lives. When suitable precautions are taken the consumptive is harmless, even in the midst of his family.

TYPHOID FEVER.

Typhoid fever, like consumption, is a germ disease, and is preventable. The germs of typhoid fever lodge in the bowels, and escape in the bowel and the kidney discharges; and every case of typhoid fever means, in plain language, that the patient has swallowed, in eating or drinking, germs from the excreta of another patient. As the only means of spreading typhoid is from the patient's discharges, prevention lies in properly caring for them. The receptacles should have carbolic solution or other disinfectant put in them, and should be emptied into a water closet, or, if there is no sewer system, into a privy that does not leak, and is flyproof. The soiled bedclothes should be soaked in a solution that will kill the germs, and then washed. Those who take care of the patient should be very careful to wash their hands after handling the patient. To guard against infection during the typhoid season, or when a case has occurred near by, all drinking water and milk should be boiled. In other food the germs are usually killed in cooking. Privies in bad condition should be repaired.

BOWEL COMPLAINTS.

What has been stated about typhoid is true for other bowel complaints such as dysentery, which every summer kills so many children. The cause, the effect, and the means of prevention are the same as in typhoid. To have a dirty privy is to invite trouble that, when it comes may bring death.

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SMALLPOX.

Small-pox, which often comes as an epidemic, is very contagious, but may be prevented by vaccination, which gives almost sure protection for five or seven years, or even longer. Children should be vaccinated when one or two years old, and in an epidemic it is safer for all to be vaccinated except those that have had a successful vaccination in the previous two or three years.

PNEUMONIA.

Pneumonia causes a loss of lives every year in mining communities, especially where the winter climate is severe. It is a lung disease, but is not contagious like small pox. The two predisposing chief causes are exposure to cold, and drinking alcohol. Men who work in warm places and then have to go into the cold air, or men who are in any way exposed to wet or cold weather, should take especial care to avoid getting chilled. The combination of getting chilled and wet, and then drinking whisky to warm up is a dangerous one. Nothing will overcome a chill and lessen its bad effect better than hot coffee, which warms and stimulates, whereas alcohol weakens the vitality.

ROCK DUST.

Dust is not a disease, but it is the cause of disease. Any hard, sharp rock dust when breathed into the lungs irritates and cuts them, making many small scars. These scars

make the lungs less able to perform their proper duty. Besides, because of the constant irritation, the lungs become inflamed, and consumption is liable to develop. Men who breathe hard rock dust constantly often get consumption. The constant irritation of the lungs weakens them, and at the same time gives the seeds of consumption a good chance to grow. The dust breather is also more liable to fall a victim to the careless spitter than the man whose lungs are sound. If he gets pneumonia, his chance of recovery is not so good. The dust breather has to fight not only the effects of any lung disease he may get, but also the harmful effects of the hard rock dust, which is constantly adding to the ravages of the disease. What can the miner do to avoid breathing dust? Water drills are being used more and more. In dry drilling with machines it is possible to lay the dust by water lines, or by using a squirt gun and water from a bucket, but often men drill with the hole dry rather than turn on the water, because it spatters on them, or makes the place sloppy. When drilling overhead, and the water runs down, wear a rubber hat and boots, and, if necessary, a rubber coat. A man working anywhere where there is much dust should wear a respirator if possible, and see that it is in good condition. Respirators are clumsy, and more or less of a nuisance, but it is better to wear one than to have consumption. Do not breathe hard rock dust day after day, because if you do it will disable you in time. Men who can "eat rock dust"—like the men who can "breathe gas"—die young.

Apart from confidential researches undertaken for the Government, several investigations of the highest importance are in hand or will be begun by the Imperial College of Science and Technology when opportunity offers. Among these are the magnetic quality and heat treatment of steels; the flow of steam with special reference to turbines; timber diseases of coal pit props; chemical constituents of coal and the action of oxygen and heat thereon; refractory materials employed in coke oven and furnace construction; metallurgy of zinc; and critical speeds of turbo generator shafts. At a meeting of the governing body of the college, Lord Crewe said it was the intention of the Government to appoint a Special Committee to enquire into the question of scientific teaching, and there might be other committees. The general objects of the Committee would be to enquire into the position of national science in our educational system, especially in universities and secondary schools. Its duty would be to advise authorities how to promote the advancement of pure science and the interest of trade. The provision of scholarships and bursaries would not be overlooked.

ITEMS FROM THE REPORT OF THE RHODESIAN SECRETARY FOR MINES FOR 1915.—The total number of deaths amongst Europeans and natives on the mines amounted to 1,001, which was equivalent to a death rate per annum per 1,000 of 25.18. The total number of deaths by accidents was 159 in the year, an increase of 21 on the previous year's figures. The number of producers of gold from reef claims was 489; there were also 19 producers of alluvial gold, mainly from the Angwa River. Three mines in the country produced 27.6 per cent. of the total output. They were the Shamva, 103,979 ozs.; the Globe and Phoenix, 93,672; and the Cam

and Motor, 55,746ozs. The output was mainly dependent upon the larger producers, "but the Small Workers are of great value to the country in developing and proving the value of claims on an inexpensive basis, very often with excellent results to themselves, and thus paying the way for capital in cases where claims are shown to contain larger possibilities than were at first anticipated." The value of the 1915 output was £3,823,168, as against £3,580,209 in 1914, an increase of £242,959. Over the total output the average value per ton crushed works out at 26s. 11d. The Hartley District comes second in regard to the number of gold reef claims, the first three being Bulawayo, 12,273; Hartley, 10,953; Gwelo, 7,877. No Regulation affecting the mining industry was dealt with during the session of 1915, but it was announced in the Council that arrangements had been made to hold over from forfeiture all claims of individual claimholders who had gone to the Front, and that protection free from payment of fees would be allowed until their return, when sufficient time would be granted them to perform the necessary work for inspection purposes. The net collection of administrative revenue was £25,687 as against £29,215 for the previous year. The monthly average of Europeans employed in mining operations was 1,819; that of natives, 37,928.

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THE JULY OUTPUT IN DETAIL.

Slight Falling Off—Labour Supply Unchanged.—Outside Districts Improvement.

The gold output for July showed a decrease of 677 ozs. compared with June. The total output was 761,087 ozs. of a value of £3,232,891, the decrease being £2,876. The Witwatersrand mines returned 733,485 ozs., equal to £3,115,647, being a decrease of 1,709 ozs. This was counterbalanced to a slight extent by an increased return by the outside districts, the figures being 27,602 ozs. and £117,244, and the increase 1,032 ozs. and £4,381. The stamp position shows that 9,707 were operating, of which 9,210 were on the Witwatersrand, an increase of 35 on June and 497 in the outside districts, a decrease of 10. The native labour force is practically unchanged as far as the gold and coal mines are concerned, but the number employed in diamond mining has increased from 2,105 to 3,339.

Total output	...	...	761,087 ozs.
Decrease	...	...	677 ozs.
Value	...	...	£3,232,891
Decrease	...	...	£2,876
Witwatersrand	...	...	733,485 ozs.
Decrease	...	...	1,709 ozs.
Value	...	...	£3,115,647
Decrease	...	...	£7,257
Outside Districts	...	...	27,602 ozs.
Increase	...	...	1,032 ozs.
Value	...	...	£117,244
Increase	...	...	£4,381
Stamps	...	...	9,707
Increase	...	...	25

INCREASES AND DECREASES.

	Value.	Increase.	Decrease.
Aurora	£18,452	£263	—
Bantjes Consolidated	25,580	2,205	—
City and Suburban	51,865	—	£106
Consolidated Langhaagte	63,006	—	1,308
Consolidated Main Reef	39,538	—	2,807
Durban-Rodepoort	14,642	293	—
Durban Deep	33,638	149	—
Ferreira Deep	84,113	—	7,379
Ginsberg	15,236	—	243
Glencairn	14,366	773	—
Government Areas	76,718	930	—
Luijpaardsvlei	24,208	47	—
Main Reef West	26,540	—	2,022
Meyer and Charlton	34,878	—	267
Modder B.	99,316	—	1,729
New Goch	30,435	—	986
New Modder	116,324	—	1,950

	Value.	Increase.	Decrease.
New Primrose	£17,042	—	£318
New Unified	13,754	£331	—
Nourse Mines	65,730	3,653	—
Rodepoort United	33,150	1,314	—
Rose Deep	12,029	—	4,949
Van Ryn	47,473	2,740	—
Van Ryn Deep	87,278	—	353
Village Main Reef	39,346	—	3,327
West Rand Consolidated	38,943	—	3,198
Witwatersrand	55,127	—	489
Wit. Deep	51,627	—	3,385
Wolluter	45,986	—	246
City Deep	120,895	1,576	—
Crown Mines	221,663	—	7,353
Geduld Proprietary	42,647	1,695	—
Geldenhuis Deep	72,701	—	1,228
Jupiter	26,744	570	—
Knight Central	28,821	—	1,070
Knights Deep	83,922	3,593	—
Langlaagte Estate	54,821	—	2,719
May Consolidated	10,594	637	—
Modder Deep Levels	77,152	5,081	—
New Kleinfontein	68,953	4,281	—
New Kleinfontein (Apex)	2,816	2,816	—
Princess	29,687	964	—
Robinson Deep	75,733	—	1,181
Randfontein Central	248,590	11,061	—
Village Deep	84,526	5,357	—
Simmer and Jack	58,461	—	6,945
Simmer Deep	61,116	3,738	—
Vogel Estate	12,136	—	148
West Rand Central	2,533	64	—
East Rand Proprietary	200,973	3,411	—
Brakpan	91,717	—	1,262
Robinson	72,454	—	1,601
New Heriot	24,008	—	102
Miscellaneous	7,691	—	6,098

OUTSIDE DISTRICTS.

Nigel	13,601	—	399
Barrett	1,253	—	310
Qwest	1,894	8	—
Sheba	8,976	—	1,711
Sub Nigel	18,699	2,146	—
T.G.M.E.	33,098	—	1,529
Fairview	2,434	—	353
Glynn's Lydenburg	13,155	4,320	—
Miscellaneous	24,131	2,209	—

Manicaland June Output.

The mineral output of the territory of the Companhia de Mocambique (Manicaland) for the month of June, 1916, was as follows:—Reef—Mill: Gold won (fine), 47ozs. 19dwts. 0grs.; tons crushed, 136; value, £198 14s. 9d. Alluvial: Gold won (fine), 669ozs. 4dwts. 14grs.; cubic metres dredged, 46,500; value, £2,774 4s. 6d.

Gold Imports and Exports.

Messrs. Samuel Montagu and Co., reporting on the movements of gold, state that the British returns of imports and exports of gold for this year form, as might be expected, an interesting comparison with the similar period anterior to the war. As regards imports, the amount during the first five months of this year is £6,263,755, as against £22,910,508 during the corresponding period of 1914. The difference is mainly based upon the non-receipt of gold produced in Africa, which has not been imported, as used to be the invariable custom, but is stored there on account of the Bank of England. This, therefore, does not militate against the availability of the gold for the purpose of a reserve, and Great Britain still reaps the benefit of the

gold output within that portion of Africa which forms part of the British Empire to the extent of about £41,000,000 a year, exclusive of the £16,000,000 derived from other outlying portions of the British Empire. Turning to exports, the total during the first five months of this year is £19,639,396, as against £20,460,886 during the corresponding period of 1914. The increase in the export of gold to the Netherlands and Spain is notable, over £6,000,000 and £5,000,000 respectively. On the other hand, neither Germany nor France are represented in this year's total, although in the first five months of 1914 the former was the recipient of nearly £5,000,000. The figures of this year show an export to the United States of something over £3,500,000. This by no means represents the total remittance of precious metal to that country on British account, as large payments have been made via Canada and elsewhere. The impression gained from a study of the figures is that the output of gold from British possessions, approximating £60,000,000 a year, has admirably sufficed, with the assistance of repatriated American securities, to meet the huge demands for indebtedness abroad created on behalf of Great Britain and her great Allies as a consequence of the war. It is stated that Australia has made arrangements for Commonwealth notes and silver to be cashed at Colombo free of exchange. Doubtless this arrangement has been made to meet some local needs occasioned by the movement of troops and stores. The fact, however, that currency notes are being made available for encashment in other parts of the Empire other than the issuing State, is pregnant with possibility. The British Treasury Note, surcharged in Arabic, already circulates in Egypt.

JULY OUTPUT: GROUP RETURNS.

Rand Mines Group.

The following are the results of crushing operations of the Rand Mining companies for the month of July:—

Company	No. of Stamps Running.	Tube Mills	Tons crushed.	Estimated Working Costs per Ton.	Total Fine Ore	Total Estimated Profit.
Modder B.	186	6	45,000	17 9/7	23,381	£57,160
New Modder	180	7	54,400	17 5/4	27,385	66,142
PRY Deep	154	9	58,500	20 1/7	28,161	59,503
Village Deep	180	7	53,100	19 10/8	19,899	30,064
Village Main R.	160	1	28,000	18 1/9	9,263	13,101
Witwatersrand	245	6	58,800	12 11/6	17,057	32,789
Witwatersrand Cons.	90	3	23,206	21 3/2	6,022	330
Tls. & averages	1105	42	321,060	17 11/0	131,468	£250,389

(a) Includes 16 Nissen stamps; (b) includes 4 Nissen stamps.

The following are the results of crushing operations of subsidiary companies for the month of July:—

Company	No. of Stamps Running.	Tube Mills	Tons crushed.	Estimated Working Costs per Ton.	Total Fine Ore	Total Estimated Profit.
Res. Deep	300	7	63,500	16 11/0	17,169	£17,476
Goldenhuis Dp.	300	7	55,500	20 8/6	17,116	13,726
Nourse Mines	260	7	48,300	21 7/3	14,768	9,231
Ferrira Deep	280	7	47,830	23 2/7	19,809	26,831
Crown Mines	660	26	178,000	18 1/0	52,184	56,070
Durban Rd. Dp.	100	3	27,200	22 7/6	7,919	2,155

Tls. & averages 1900 57 420,330 19 6/5 128,965 £125,489

Ferrira Deep, Ltd.—Decreased profit due to lower tonnage milled on account of native labour shortage, reduced yield per ton and abnormal expenditure on No. 2 Shaft reorganisation.

Albu Group.

The following information is officially supplied regarding the July operations of the producing companies of the Albu group:—

Company.	Stamps.	Tons Crushed.	Total Cost.
Aurora West	80	15,100	£13,641
Meyer and Charlton	75	15,000	13,748
New Goch	120	31,320	20,439
Roadport United	70	33,405	29,672
Van Ryn Estate	155	37,200	28,968
West Rand Con.	100	33,600	32,666
Total	600	165,625	£139,134
Company.	Cost per Ton.	Total Revenue.	Profit.
Aurora West	18 0/8	£18,134	£4,493
Meyer and Charlton	18 4/0	31,306	20,558
New Goch	13 0/6	29,922	9,483
Roadport United	17 9/2	32,786	3,114
Van Ryn Estate	15 6/9	46,838	17,870
West Rand Con.	19 5/3	38,595	5,929
Total		£200,581	£61,447

Roadport United.—Milling operations were suspended for two days at the beginning of the month, for repairs to the winding engine. This, together with the effects of the large wastage of native labour in May and June, was responsible for the low tonnage and profit.

West Rand Consolidated.—The lower tonnage and profit are due to acute shortage of native labour.

Barnato Group.

The results of operations of the Barnato group for July are as follows:—

Mine.	Stamps.	Tons Crushed.	Revenue from Gold.
Consolidated Langlaagte	100	50,350	£63,007
Ginsberg	75	15,551	15,237
Glencairn Main Reef	160	21,650	14,365
Government G.M. Areas	100	58,400	76,715
New Primrose	140	22,700	17,011
New Unified	60	14,800	13,753
Quest	35	2,973	1,899
Van Ryn Deep	80	11,950	87,282
Witwatersrand	215	45,250	55,126
July Totals	965	273,624	344,425
June Totals	965	275,271	345,113

Mine.	Total Working Costs.	Working Costs per Ton Milled.	Gross Profit including Sundry Revenue.
Consolidated Langlaagte	£41,175	16 3/55	£22,161
Ginsberg	12,554	16 1/45	2,817
Glencairn Main Reef	13,134	12 1/33	1,356
Government G.M. Areas	56,460	19 3/36	20,669
New Primrose	14,136	12 1/54	3,008
New Unified	9,675	13 0/73	4,157
Quest	1,967	13 2/32	113
Van Ryn Deep	38,242	18 2/32	50,080
Witwatersrand	32,787	14 4/92	21,065
July Totals	£220,130	16 0/89	£128,435
June Totals	£220,843	16 0/45	£128,193

Monthly Gross Profits.—January, £123,882; February, £122,713; March, £126,172; April, £125,802; May, £129,928; June, £128,193; July, 128,435.

Neumann Group.

The following are particulars of the results achieved by the crushing companies of this group during last month:—

	TONS	YIELD.	PROFIT.
Witwatersrand Deep	42,420	£50,594	£14,208
Woluhuter	36,000	45,064	13,626
Consolidated Main Reef	27,430	38,747	11,920
Main Reef West	24,370	26,011	2,123
Knight Central	26,800	28,213	1,890
Total for group		£188,629	44,067

Consolidated Gold Fields Group.

The following are particulars in regard to the outputs and profits for the month of July, 1916, of the undermentioned companies of the Consolidated Gold Fields group:—

Company.	No. of Stamps.	Tube Mills.	Tons Crushed.	Gold declared, Fine Ozs.	Total Profit.
Simmer and Jack	320	7	60,500	15,103	£17,460
Robinson Deep	120	8	50,800	18,045	25,201
Knights Deep	100	11	109,100	20,297	17,502
Simmer Deep	220	10	68,400	13,938	5,513
Jupiter	80	5	25,000	6,296	5,102
Sub-Nigel	30	2	8,700	4,222	4,235
Totals	1,170	43	322,900	77,901	£75,013

Reserve Gold.—Simmer and Jack, nil; Robinson Deep, 2,222 ozs.; Knights Deep, 2,186 ozs.; Simmer Deep, 450 ozs.; Jupiter, 1,640 ozs.; Sub-Nigel, 2,100 ozs.; total, 8,598 ozs.

The sundry revenue included in the above total declared profit is as under:—Simmer and Jack, £1,500; Robinson Deep, £86; Knights Deep, £401; Simmer Deep, £612; Jupiter, £859; Sub-Nigel, £263; total, £3,721.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

The Galvanised Iron Question—Restricted Buying by the Mines—Is it the Favourable War News?—South African Wood Industries.

THE question of the sharp rise of a penny per foot in galvanised iron reported last week created quite a diversion. However, there was less surprise when the secret came out on the following Monday, viz., that the British Government had prohibited its exportation from July 26th. It also included cast-iron pipes, iron plates, steel plates (except tin plates and some others), motor ploughs, agricultural tractors and various small tools. As previously stated, the price of galvanised roofing iron was quickly jumped up a penny per foot, but very little business was transacted at the full advance, but at a half-penny advance considerable trade was done. The fact was that when the cable particulars were published, it was recognised that, not only were fair supplies in stock throughout South Africa, but the Americans were sending regular consignments to South Africa. On the top of this, a firm dealing in timber and galvanised iron, received a cable from America offering Oregon timber at about 15 per cent. below current rates, to be delivered at our coast per motor boat. This is very interesting information, as it is said that this is the first time the term "per motor boat" has been used. This, until further news is received on the subject, will give rise to some interesting discussion as to whether the motor will be used to keep things moving in calms and at the ports, or whether it will serve a similar purpose to that of steam, by propelling the ship altogether.

THE FREIGHT QUESTION.

There are signs, perhaps not very clear at present, but some importers are certainly imbued with the idea that freights per outside steamers—that is, other than the advertised recognised liners—are easing, particularly between America and Europe, which may be the forerunner of other countries being affected sooner or later. In an interesting interview with an importer who has all these matters at his fingers' ends, it was gathered that when the war conditions became pronounced in favour of the Allies, freights and conditions would quickly ease, simply because the commercial world always discounts matters well ahead. For example, at the moment, the Stock Exchange in Johannesburg continues wonderfully firm, presumably discounting the future.

POOR BUYING FOR THE MINES.

A buyer was heard to make a casual remark that they were only buying just ordinary lines, and little at that. Is this surprising considering the improved—slow, but certainly sure—war news day after day? The mines are full up for many months ahead, with an assurance from the British as well as our own Government that urgent mining supplies will always be arranged for. In addition to this, the merchants' stocks are larger and more assorted, than at any time this year. These can be drawn upon, and the fairly regular supplies from America are no mean factors today, for not increasing the huge stores held by the mines, as disclosed by their half-yearly statements, at the end of the June half-year. Most people think under all these favourable circumstances, that the mine balance sheets for this half year will show far less totals representing actual stores on hand, than for the first half of 1916.

SOUTH AFRICAN WOOD INDUSTRIES.

At the coast ports and in Johannesburg the furniture wood industry, as well as that appertaining to doors, windows, and the many et ceteras connected with the building trade has been taken up in very earnest since the war started. And now high hopes are entertained that most of this will be retained after the war. As regards the building trade, an expert states it is almost wholly a matter of hav-

ing the latest and best machinery to cope with the imported made doors, windows, frames, etc. In this respect the question arises as to whether the South African demand will justify such a large expenditure, especially as the European and American makers will make a dead-set at our markets. These markets are often exaggerated by our very much world-wide advertised gold and diamonds industries.

AN UNIQUE WOOD INDUSTRY.

Piping made of wood is as old as the hills. Well, until a few years ago most of that used here came from America. It is used in mines, particularly collieries, where the water is strongly acid-laden, which corrodes iron piping through in a few months. Thanks to the enterprise of a Capetown factory, the imported article has been superseded by the South African, made upon an improved and patented type. The original idea was conceived in connection with the big cooperage works throughout the Cape, for making brandy and wine casks, which are as near perfection as needs be. The staves for the wooden pipes are machined with a tongued and grooved joint, and the completed pipe is connected by a wood collar. The wire used to bind the pipes is of the best galvanised description, and is operated by a clever mechanical machine. The final process is to give the pipes a heavy external coating of tar or asphalt. In the upper Western Province of the Cape, farmers are using this class of pipe for irrigation purposes, and the evidence goes to show that they are simpler, better and cheaper in irrigation work than the ordinary imported iron pipes. In conclusion, it is said that, taking everything into account the cost is only about a quarter of that of any other pipes. They can be easily fixed by the farm hands, and being so light the cost is less for railage and transport of every kind. However, there is one remark which must not be omitted. It was made in the conversation in connection with building material, such as doors and windows. The merchant said it is all a matter of cost. If I can buy the South African-made article at the same price as the imported, I should prefer doing so; but I am in the distributing business and am, naturally, out for a profit, therefore, at rock bottom it resolves itself into a matter of pounds, shillings and pence.

THE AMERICAN TRADE.

A commercial broker states that, whilst the American market is freely open to us—in fact, their representatives are now bustling to secure a substantial trade footing in South Africa—all well and good. However, he raises a warning note on the subject, that the Americans, though exporting so very hugely wherever they can, must be neglecting their own markets; now if they should suddenly restrict their exports and turn to their own orders, it might put us to considerable inconvenience. For example, the British non-export of galvanised iron will not hurt us much, if anything; but supposing we get very little from American sources, values might be sent sky-high, as they are reckoned cut-traders when the opportunity suggests itself. Naturally, what applies to galvanised iron also does to other articles in the prohibited degree from Britain.

MISCELLANEOUS TRADE ITEMS.

Oils and colours remain the same in price; but jobbing work has slightly improved, chiefly on account of the expected rainy season. Electrical goods are plentiful and jobbing work is a little better as people are tired of waiting for the more pressing work. Second-hand trade is dullness itself; but immediately the rain starts a decided improvement is anticipated, as the outhouses, etc., will require repairs against the water.

REVISED PRICE LIST.

Approximate war prices, subject to quick change—
 Building hardware: Iron, unpatented, round, 4 in. to 12 in.; 1½ in. to 1½ in., 13s. 6d.; 2 in. to 6 in., 25s. to 100 lbs.; 1 lb., square, up to 1 in., 27s. 6d.; 1½ in. to 2½ in., 43s. 6d.; 2½ in. to 5 in., 25s. Plats, 3-16 in. to 7-16 in., all from 4 in. up, 39s. Angles, 2 in. to 3-16 in., 27s. 6d.; 5-16 in. to 7 in., 25s., except 2 in. x 2 in., mild steel bar, 4½ lb. drill, 7½ lb. plates, 10 ft. by 1 ft. by 1-16 in., 35s.; 1 in. by 2 in., 32s. 6d.; 1 in. to 5-16 in., 31s.; 1 in. up to 100 lb., 100 lb. by 1-16 in., 36s. 6d.; 1 in. and 3-16 in., 38s.; 1 in. to 5-16 in., 32s. 6d.; 1 in. up to 31s. 6d.; 1 in. sizes up to 12 ft. by 6 ft. by 1-16 in., 37s.; 1 in. and 3-16 in., 31s. 6d.; 1 in. and 5-16 in., 33s.; 1 in. up to 32s., all at per 100 lb.; hexagon and cuphead bolts, 1 in. diameter to 2½ in., 55s., over 2½ in., 52s. 6d.; 1 in. to 2½ in., 50s., over 47s. 6d.; 1 in., 1 in., 1 in., up to 2½ in., 45s.; 2 in., 42s. 6d.; nuts, 1 in., 10d. lb., 1 in., 60s., 1 in., 77s. 6d.; 1½ in., 1 in., 62s. 6d.; 2 in., up, 67s. 6d.; washers, all sizes, 15s.; rivets, 3-16 in., 1s. 1d. lb., 1 in., 100 lb., 10½ d., 7-16 in., 1 in., 7½ d., 1 in., 45s., 1 in., 42s. 6d.; 2 in., up, 10s. lb.; shoes and dies, 32s. 6d. to 35s. per 100 lb.; 2 in. to 2½ in. picks, 4 lbs., 27s. per doz.; shovels, 32s. to 40s. per dozen; hammers, drills, 6½ lb. to 9½ lb.; mallet handles (best American), 14 in., 3s. 6d., 24 in., 5s. 6d., 30 in., 7s. 6d., 36 in., 10s. 6d. per doz.; metal, anti-friction, 1s. per lb.; galvanised iron, 24 gauge, 6 ft. to 10 ft., 10d.; 11 ft. 10½ d., 12 ft. 10½ d.; 26-gauge, 6 ft. to 10 ft., all lengths, 8½ d. to 9½ d. per ft. all-round; flat galv., 18 to 24 gauge, 32s. 6d.; 26 gauge, 34s. 6d. 100 lbs.; floor brads, 32s. 6d.; ceiling, 33s.; wire nails, 35s. to 40s. per 100 lb.; solder, 50 per cent., 1s. 2d. per lb.; locks, rim, 48s.; mortice, 60s. dozen; barbed wire, 22s. 6d. to 25s. 100 lb. coil.

Timber: Deals, Baltic, 9 x 3, short and medium 1s. 1d.; longer lengths, 1s. 2d. to 1s. 3d. (Oregon, 1½ d.); flooring, 4½ x 7, 4 and 6 x 1½, 6½ d. to 6½ d. per sq. ft.; do., 4½ x 1½, 7d.; and 6 x 1½, 7d.; Oregon edge board, 1 x 1½, 7d.; ceilings, 6 x 4, 3½ d. to 3½ d. per sq. ft.; Oregon, 1 x 4, 4½ d.; pitch pine, 7s. 6d. to 7s. 9d. per cub. ft.; Oregon, 5s. 9d. to 6s. per cub. ft.; clear pine, 6 in. x 12 in., 7½ d. per ft.; lin. x 12 in., 8½ d.; teak, small planks, 14s. 9d. per cub. ft.; do., large, 15s. 6d.; jambo, 8s. 6d. per cub. ft.; poplar, lin. x 12 in., 9½ d.; settling, 1s. to 1s. 3d. per ft., 3 x 9.

Bricks, cement, lime, etc.: Cement, nominal, 34s. 6d. per cask; Pretoria Portland, 9s. 3d. per bag; 8s. 3d., truck loads; lime, white, 7s. 9d.; truck loads, 6s. 9d., slaked; do., 5s.; blue, 3s. 6d.; plaster lime, 4s.; bricks at kiln, stock, 36s. to 42s.; wire cuts, 40s. to 50s. pressed, 65s. per 1,000, road transport getting scarce; salt and white glazed bricks, £27 10s per 1,000; tiles, roofing, £17½ square; glazed tiles, 10s. 6d. to 17s. 6d. yard; paving cement tiles, 8s. 6d. yard laid; terra cotta tiles, £15 per 1,000; reinforced concrete columns, 6 ft. plain, 22s. 6d., fluted, 24s.; fireclay bricks, £9½, good average, per 1,000; clay chimney pots, 80s. per doz.; fireclay, 37s. 6d. ton on rail.

Oils, paints, lead, oxides, glass: Linseed, raw, 27s. 6d.; kerosene, 27s. 6d. per 5 gall.; white lead, 70s. to 72s. 6d. 100 lbs.; turpentine, 52s. 2½ galls.; 10-1, 57s.; coal tar, imported,

12-64 per 5 galls.; oxide in oil, 30s. to 35s. per 100 lbs.; lin. oxide, 21s. to 22s. 6d.; S.A. crude oxide, 12s. 6d.; fusel oil putty, 4s. 6d. per 12½ lbs.; bladders, 55s. each of 100 lbs.; grease A.F. axle, 23s. 6d. to 25s. per 100 lbs.; tallow, 1s. per lb.; White Rose paraffin, 10s. 3d. 2½, 100 lb. do., 16s.; petrol, 27s. 6d. 2½; motor oil, 6s. to 7s. 9d. per gallon; engine lubricating oils, 19s. to 32s. per 55; cylinder, 20s. to 35s.; paints in tins, 10d. to 1s. per tin, according to quantity, and if ordered to be mixed, 20 per cent. on pre-war rates. British plate-glass, 1 in., 3s. 6d.; 6 in., 1s. 6d.; window, 16oz., 1s. to 1s. 3d. foot.

Crucibles: Mercury, £184 per 75 lb. bottle; chromate (crash), 2s. 6d. lb.; chlorate, 2s. 6d. lb.; permanganate, 9s. lb.; alum, 5d. lb.; carbolic acid, 7s. 6d. lb.; borax, 85s. 100 lbs.; cyanide soda, 1s. 5d. lb.; hypo, 6d. lb.; acetate lead, 70s. 100 lb.; litharge (assay), 75s. commercial, 55s. 100 lbs.; zinc sheets and blocks, 1s. 3d. lb.; plumbago crucibles, 5d. per number.

Electrical Goods: Lamps, high volts., British, Holland & American, 16s. to 21s. wholesale, and 21s. to 27s. dozen, retail; carbon lamps, 7s. 6d. per dozen; pure rubber flex, 6d. to 8d. per yard; 3-20 coils of wire, 27s. 6d.; do. 3-22, 23s. 6d.; tubing, 12s. to 13s. 100 ft.; keyholders, 3s. each; round blocks, 3½ in., 4s. dozen; lamp holder cord grips, 15s. doz.; switches, 5 amp., 13s. to 14s. doz.; British glass shades, 21s. to 36s. doz.; Bohemian shades finished; porcelain shackles, 14s. 6d. doz.; do., bobbins, 9s. 6d. to 10s. 6d. 100; cleats, 18s. per 100; P.O. insulators, 18s.; motors, 3 h.p., about £28 to £35, new.

ANSWERS TO CORRESPONDENTS.

All inquiries addressed to the Editor must bear the writer's name and full address. We cannot reply to inquiries by letter, but telegrams with replies prepaid will be answered. Correspondents are requested to write their names and pseudonyms distinctly.

"Constant Reader" (Florida).—This is certainly not the time to sell your Daggafontains.

"Luderitz" (Luderitzbucht).—The life of a mine is a combination of many variables; and any attempt to answer your questions regarding the seven mines you mention could not fail to prove misleading.

S. W. W. (Stamerton).—See particulars in this issue. Mine next week.

"Infelix."—(1) State Mines, New Klondontains, Ont., and Suburbans. (2) Impossible to say. (3) Nothing, prospects are, if anything, improving.

"S. J. H." (Barberton).—All time very speculative, but not without prospects.

"P. C." (Thunks).

"H. M."—(1) Both equally sound investments. (2) Doubtful. (3) Too flowing. Better leave the venture alone.

"A. F. R." (Capetown).—As a speculation, yes.

"Colonist" (P.E.).—No confirmation of your view is available for. Better leave the matter in the hands of your London broker.

"Zomerlust" (Majzenburg).—(1) No. (2) Hold. (3) Hold. (4) Little to choose between them. (5) Poss. the latter for reasons given in this issue.

"Inquirer" (Krugersdorp).—(1) Cannot say. (2) No, second best. (3) Surely. (4) Impossible for us to explain the vagaries of the market.

"L. H." Cannot give official confirmation. Letter sent.

FRANK E. NOTT, Private Detective.

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THE WEEK IN THE SHAREMARKET.

A Strong Market—Renewed Activity.

LAST week's congratulations on the satisfactory result of the German liquidation may well be renewed. The market has shown an unexpected strength in the favourite and better class stock, as will be seen at a glance by comparing the prices to-day with even the advanced rates of last week. Taking the list alphabetically, African Farms are still content with a dark corner of the lumber room. Bantjes show but little change, but at 11s. sales and buyers on Friday morning are slightly to the good. Brakpans have mounted up steadily to 87s. sales; City Deeps, at 78s., are also gainers. Consolidated Mines Section, City and Suburban, Consolidated Mains and Langlaagtes may be called steady at best rates. East Rand Mining at 17s. show a substantial advance. A buying quotation of Ferreira Deeps has at last been obtained, but a bid of 22s. 6d. for the stock cannot exactly be called encouraging. Goddard have proved one of the few exceptions to an otherwise strong market and seem out of favour for the time being. Government Areas were a special feature. Those who thought that 40s. was a reasonable maximum must have been taken aback at the advance to 44s. 6d. After such a rise there was naturally a set-back, but after dropping to 43s. 6d. they have returned to 44s. 3d. In the Modderfontein trio we find Modder Deep again ahead of its rival at £6 15s. sales against £6 12s. 6d. buyers. New Modders are fast approaching the prophesied £20, being only £2 short of that figure. New Eland Diamonds have been in better demand. New Kleinfonteins, which slumped badly on adverse reports, made so rapid a recovery that one is tempted to think that the wish was father to the thought in the pessimistic rumours, doubtless circulated by certain depraved bears. Anyway, a jump of 2s. on Thursday may have taught these gentlemen caution. The squeeze once over, the price has eased off to 26s. 9d. buyers, which is still well above last week's rates. Nourse Mines were on enquiry at the improved rate of 17s. Sub Nigels have possibly provided the greatest sensation, for after advancing to 24s. and falling back to 23s., it looked as if their bolt had been shot, but yesterday morning brought them up to 25s. and even 25s. 3d. Springs have also been an active factor and are practically once more at best. The recovery of Coal Trusts has been gratifying, and a parcel changed hands yesterday morning at 72s. ex London. Van Ryn Deeps, after a period of slight depression, rose again to 69s., closing at 68s. 9d. In the small stocks Sullies and Lace Props were most fancied.

	Thurs., 3rd.	Fri., 4th.	Sat., 5th.	Tues., 8th.	Wed., 9th.	Thurs., 10th.
African Farms	8 6*	9 0	9 0*	9 0*	9 0*	9 0
Apex Mines	5 3*	5 3*	5 3*	5 3	5 3*	5 3*
Aurora Wests	—	—	14 0*	—	—	—
Bantjes Cons.	13 10*	13 10*	13 10	13 11	13 11	13 10*
Blaauwboosch Diamonds	50 0*	—	52 6*	52 6*	—	55 0*
Brakpan Mines	84 0*	87 0*	85 0*	86 0	87 0*	86 0*
Breyton Collieries	—	18 0*	18 0*	18 0*	—	18 0*
Brick and Pottery	—	—	—	5 0*	5 0*	5 0*
Bushveld Tins	0 6*	—	—	0 7*	—	—
Cassid Coals	—	—	20 0*	20 0*	20 0*	20 0*
Cinderella Cons.	6 0*	6 0*	6 0*	6 0*	—	6 0*
City and Suburban	32 9*	33 0	33 0*	33 0	32 0*	33 3
City Deeps	76 0*	76 0*	75 3*	75 8	76 6	77 0
Cloverfield Mines	8 3*	8 5	8 5	8 8	8 6*	8 6
Concrete Construction	2 6*	—	—	—	—	3 1*
Cons. Langlaagtes	23 6*	23 0*	23 0*	23 0*	23 6*	23 0*
Cons. Main Reef	17 9*	17 9*	17 9*	17 1*	18 0*	18 0*
Cons. Mines Section	18 6	19 0*	20 0*	20 0*	—	2 1*
Coronation Collieries	—	30 0*	30 0*	30 0	—	—
Crown Mines	—	—	—	—	—	62 6*
East Rand Centrals	3 9*	9 0	8 9*	9 0*	9 0*	9 0*
East Rand Coals	3 5*	3 5	3 3*	3 5	3 3*	3 4
East Rand Deeps	1 3*	—	1 4*	1 4*	—	1 3*
East Rand Mining Estates	17 6*	16 0	16 3*	16 3*	16 0*	—
East Rand Props.	13 6*	14 0*	13 6*	13 9*	13 6*	13 6*
East Rand Debutantes	£72*	£72*	—	£72*	£72*	£72*
Eastern Gold Mines	—	—	—	—	—	1 6*
Ferreira Deeps	—	—	27 0*	—	—	22 0*

*Buyers. †Sellers. ‡Ex London. §Odd lots.

	Tues., 3rd.	Fri., 4th.	Sat., 5th.	Tues., 8th.	Wed., 9th.	Thurs., 10th.
Ficks Smith Diamonds	2 2*	2 4	2 4*	2 4	2 6	2 7*
Goddard Props.	42 0	42 6	42 0	41 6	41 0	40 9*
Glencairn	1 1*	1 0*	—	1 0*	—	1 6*
Glencairn Collieries	7 1*	—	0 0*	6 6*	6 6*	6 0*
Glyn's Lydenburgs	—	—	—	15 0*	15 6*	—
Government Areas	40 3	40 9	41 9	42 3	44 0	43 6
Jupiters	8 6	8 6	8 1*	8 0*	8 1*	8 0*
Klerksdorp Props.	—	—	2 3*	—	—	2 5*
Knight Centrals	12 11	13 0*	13 0*	13 3*	12 0*	12 3
Kings Deeps	2 1*	—	—	—	—	—
Lace Props.	5 9	5 10	5 9*	5 10*	6 6*	6 2
Lydenburg Farms	7 9	7 7*	7 0*	7 0*	7 11*	7 9
Main Reef Wests	5 11	7 0*	—	6 6*	—	6 9*
Main Reef West Debs.	—	—	—	—	—	£55*
Middelbui Estates	1 1*	1 6*	1 1*	1 0*	1 3	1 3*
Middelbui B.	130 6*	130 6*	133 0	133 0	132 6	132 6
Modder Deep Levels	132 6*	133 0*	133 0*	133 6*	132 6	134 0
Modder Tins	13 9	13 9*	14 0*	—	14 6*	14 0
Natal Navigation Colls.	16 6*	17 0*	17 1*	—	16 6*	16 6*
National Banks	—	—	—	£11*	—	—
New Boksburgs	1 6*	1 6*	1 7*	1 7*	1 7*	—
New Eland Diamonds	19 6*	20 9*	19 0*	2 0	2 1*	20 6*
New Era Cons.	3 3*	3 4	3 6*	3 6*	3 6*	3 6*
New Goddard Deeps	5 0*	5 0*	5 0*	5 0*	4 11*	5 1
New Herois	—	—	—	—	43 0*	—
New Kleinfonteins	26 6	26 6	25 3	25 3	25 9	27 6
New Modderfonteins	345 0*	342 6*	348 9	35 0*	355 0	355 0
New Nigels	10 6*	10 6*	11 0*	11 0*	—	—
Nourse Mines	15 6*	—	15 6*	15 6*	15 6*	15 3*
Pretoria Consols	1 10*	73 0*	73 0*	72 0*	72 0*	73 0*
Princess Estates	1 10*	3 1*	3 1*	3 1*	3 1*	3 1*
Rand Collieries	3 3*	3 3*	3 3*	3 3*	3 3*	3 3*
Rand Klips	7 9*	7 1*	8 0*	—	6 6*	7 10*
Rand Mines	63 0*	68 0*	—	—	—	—
Rand Nucleus	1 9*	1 9*	—	—	1 1*	1 9*
Randfontein Deeps	3 9*	3 10*	4 1*	3 1*	3 1*	3 9
Randfontein Estates	—	12 3*	12 13	13 0	13 0*	13 0*
Rooiberg Minerals	12 0*	—	11 0*	11 0*	—	12 0*
Rooderpoort Uniteds	9 3*	9 3*	9 3*	—	—	9 3*
Ryan Nigels	2 6*	2 6*	2 6*	2 6*	2 6*	2 6*
Sabias	—	2 0*	2 0*	2 0*	2 0*	2 0*
Summer Deeps	2 8*	2 8*	2 8*	2 8*	2 7*	2 6*
S.A. Breweries	3 6*	31 3	31 3	—	3 1*	3 1*
S.A. Lands	4 4*	4 4*	4 4*	5 3	5 3	5 10
Springs Mines	58 0	59 3	59 3	59 6	59 6	58 9
Sub Nigels	21 6	22 3	23 0*	23 0*	24 0	23 0
Transvaal Coal Trust	68 0*	7 1*	7 1*	7 1*	7 1*	7 1*
Transvaal Lands	—	—	15 3*	15 0*	15 3*	15 3*
Transvaal G.M. Estates	—	21 0*	21 0*	21 0*	—	22 6*
Van Ryn Deeps	67 6*	67 6*	67 6*	67 6*	67 6*	67 9
Village Deeps	25 0*	26 6*	27 0*	27 0*	—	28 0*
Village Main Reef	17 6*	17 0*	17 0*	17 6*	17 0*	—
Vogel Cons. Deeps	1 4*	1 5*	—	—	—	—
Welgedachs	—	—	17 0*	—	—	17 6*
Western Rand Estates	1 1*	—	—	—	—	1 0*
Witbank Collieries	33 0*	38 0*	38 0*	—	—	—
Witwatersrand's	53 0*	53 0*	53 0*	53 0*	53 0*	53 0*
Wit. Deeps	23 0*	23 0*	23 0*	24 0*	24 0*	23 0*
Wolfonters	1 1*	1 1*	1 1*	1 1*	1 1*	1 1*
Zeeplaat Tins	9 0	9 0	9 0*	—	—	9 0

*Buyers. †Sellers. ‡Ex London. §Odd lots.

PERSONAL.

The list of certificates issued by the Mines Department for the month ended 31st July, 1916, is as follows:—Mine Overseers' Certificates (Metalliferous Mines): W. M. Corrie, J. Larkin, J. H. Nightingale, R. M. Taylor, F. C. van Pretia; (Collieries): D. Edwards. Mine Surveyors' Certificates: R. C. Coppinger, H. S. Isaacs, P. D. Spillars.

At the monthly meeting of the South African Institute of Engineers to-night, interesting contributions will be read from Messrs. W. Ingham and J. A. Veldman.

Captain R. A. Rindley, who in private life is joint managing director of Messrs. R. Hudson and Sons (S.A.) Ltd., has left for East Africa.

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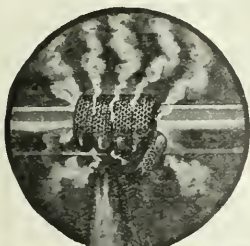
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S.-W. Transvaal Diamonds June Output.

The returns of diamonds found in the South Western Transvaal for the month of June are to hand, and show that the total finds are being well maintained. The figures for the six months of the year are given as under:

	Carats.	Value.
January	2,486½	£11,818 7 0
February	3,606½	20,910 10 6
March	4,041	20,632 16 0
April	3,592½	18,465 0 0
May	3,877½	20,141 15 6
June	3,461½	20,622 6 6

THE INDIVIDUAL PRODUCING AREAS.

These numbered 46, and are subjoined, those in the Bloemhof district being given without any distinguishing mark, those in the Welmaransstad district being preceded by †, Kierksdorp district by †, and Lichtenburg district by ‡, viz.:

	Carats.	Value.
London	901	£5,308 1 0
Dievedraai	3,753	2,325 19 6
Sch. Reneke	3,214	2,092 17 6
Bloemhof	366	1,974 17 0
Goedeheop	1,322	847 4 0
Kaiferspan	152	809 0 0
Cawood's Hope	824	723 10 0
Kameekuil	794	654 10 0
Christiana	741	651 15 0
Grootdoorns	904	607 10 0
Klipkuil	873	591 0 0
Koppiesvlei	1101	565 12 6
Kromellenboog	93	476 12 6
Moofontein	67	397 12 6
Doornbult	293	278 5 0
Zevenfontein	553	256 0 0
Panfontein	581	254 0 0
†Eastleigh	343	250 15 0
Eerstebegin	371	241 0 0
Biesbokfontein	273	195 5 0
Rietput	201	182 10 0
*Kareepan	26	140 10 0
Mimosa	334	132 0 0
Homansvlei	16	110 10 0
Uitkijk	132	108 15 0
*Boscuplaats	20	103 0 0
Schaapplaats	8	89 5 0
Plessisdam	163	71 10 0
†Goedgenoeg	134	70 0 0
Zoetfontein	183	60 10 0
Leeuwbosch	91	52 0 0
Diamantdoorns	6	37 10 0
Kareepan	41	32 10 0
Klippan	53	21 0 0
Zwaaitlaagte	31	19 15 0
Grootpoort	43	15 0 0
Zandfontein	33	14 10 0
Uitspanning	11	13 0 0
Olievenhoutfontein	31	12 0 0
Spreeuwfontein	13	9 0 0
Katboschfontein	46	8 0 0
Biesjeslaagte	2	6 15 0
Langkuil	54	6 10 0
*Leeuwfontein	11	5 0 0
*Kameelpan	1	4 0 0
Katdoornkraal	4	2 0 0

SPECIALLY MENTIONED DIAMONDS.

The stones specially mentioned in the returns comprised the following: At London, one of 10 carats, value £130; at Dievedraai, one of 10½ carats, value £110; at Schweizer-Reneke, three aggregating 22½ carats, value £352 10s.; at Bloemhof, one of 11½ carats, value £45; and two aggregating 24 carats, value £267; at Goedeheop, one of 29½ carats, value £220; at Kaiferspan, one of 12½ carats, value £72; at Cawood's Hope, two aggregating 42½ carats, value £520; at Kameelkuil, two aggregating 43½ carats, value £450; at Christiana, one of 12 carats, value £192; at Kromellenboog, one of 10½ carats, value £5; at Doornbult, one of 8 carats, value £120; at Eastleigh, one of 10 carats, value £120; at Biesbokfontein, one of 9½ carats, value £120; and at Katboschfontein, one of 43½ carats, worth only £2.

Navy League.

A large meeting was held on Tuesday, Mr. J. Chilton, acting manager, in the chair, at the Village Main Reef G.M. Co., when Mr. Kenneth Austin gave his popular lecture, "A Short History of the British Navy," which was illustrated by lantern slides of all the different types of ships. It was decided to form a branch of the Navy League on the mine, and it is hoped that now the Ferreira Deep and the Village Main Reef mines have started, the establishment of branches will be extended along the whole reef, and in the municipalities along the reef.

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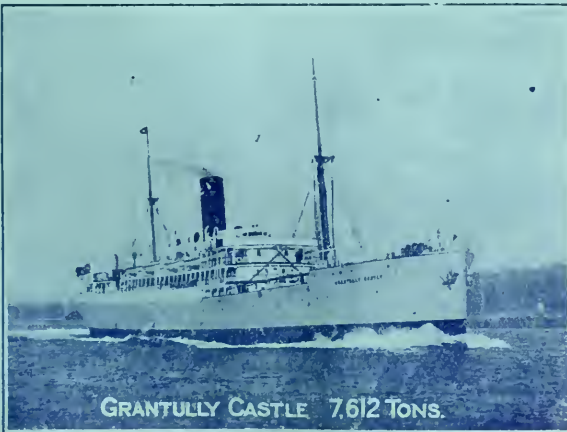
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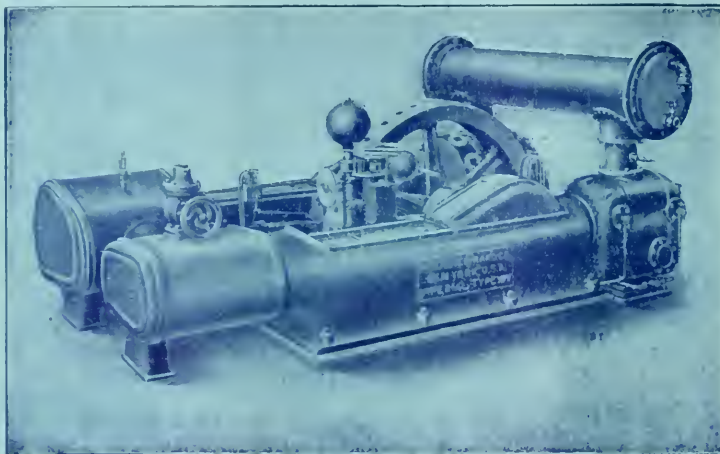
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